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Inside Dope

By GEORGE F. TAUBENECK

Learn to live and laugh — thus delay your epitaph

Stories of the Week
Mistletoe Missile
Verse for the Holidays
Golden Age of Christmas
Holiday Admonition
Quotes of the Week

Stories of the Week

"Don't you all want to go up to Heaven?" exasperated a Sunday School teacher to her unruly charges.

Every obstreperous and obstructious pupil—save one—nodded assent.

"I can't," sopranoed Shirlee. "My momma told me to come straight home in time for Sunday dinner."

Among the aborgines of Papua and upper Australia, the Lord's Prayer reads (in their "pidgeon English") thisaway:

"Our father on top sky. Thy name is feared. Thou art our boss.

"Men-women will listen to Thee this place earth as the good souls of men-women listen to Thee on top sky.

"Give us tucker till the sun goes down.

"We did wrong; make us good. Watch us against the bad place. Thy hands are stretched out to guard us from bad fellas—."

Sunday school teacher, attempting to convey God's omnipotence, queried:

"Is there anything God cannot do?"

A little hand went up and a tiny voice accomporned:

"Yes. God cannot please everybody."

Mistletoe Missile

Catholic priest condemned use of cosmetics.

"The more experience I have with lipstick," he declared. "the more distasteful I find it."

Verse for the Holidays

Nothing makes the human race
Harder to justify
Than being completely sober
When everyone else is high.

Golden Age of Christmas

An eccentric 19th century Englishman (who died in 1912 at the age of 85) is largely responsible, by a curious twist of fate, for revelations about the origins of many of our modern American Christmas traditions.

That man was Jonathan King, a passionately dedicated hobby-

(Concluded on Page 10, Col. 1)

American Coils Acquired by Welbilt Corp.

NEW YORK CITY — Welbilt Corp., Maspeth, N. Y., has signed a contract for the acquisition of the business and assets of American Coils Co., Farmingdale, N. J., it was announced last week.

The acquisition was made in exchange for Welbilt common stock.

Alexander P. Hirsch, Welbilt chairman, said that Michael Parcaro, American Coils president, will continue as president of the Welbilt Air Conditioning & Heating Corp. The latter is a newly-formed subsidiary of Welbilt, set up to conduct an expansion program.

American Coils makes air conditioning and heating equipment for the industrial, commercial,

(Concluded on Page 4, Col. 5)

Random Testing Set For Units with ARI Unitary Seal

WASHINGTON, D. C. — On the eve of issuance of the first 1960 "Directory of Certified Unitary Air-Conditioners," Air-Conditioning & Refrigeration Institute announced that it has established a "random testing" pattern under which at least four units will be tested every month to determine whether their rated capacities are met by the stock units themselves.

"The units to be tested are to be withdrawn at random from the stocks of distributors, under provisions of the ARI Unitary Air Conditioner Certification Program," the announcement said. "Already a number of units have been rigidly tested by the independent laboratory under contract to ARI.

"Under the random testing procedure (no manufacturer

(Concluded on Page 4, Col. 1)

'AromaRama'

It Couldn't Be, Without Air Conditioning

By Phil B. Redeker

NEW YORK CITY—Air conditioning, which can take credit for much of the growth of the movie industry by making it possible for patrons in the hottest of climates to be comfortable in theaters, has also made possible the newest concept in movie-making — "AromaRama" — a motion picture in which the viewer smells what he sees.

As the first full-scented movie "Behind the Great Wall" had its premiere in New York City and brought gasps of astonishment from viewers, those responsible for this new development in movie making gave full credit to the advances achieved in the

(Concluded on Back Page, Col. 1)

'United Industry Approach' Planned by Hydronics Group

BHC Council Reorganized Into 2 Divisions

NEW YORK CITY—A forceful promotion effort which will strike at all markets—not just residential as has been the case in the past—will mark the Better Heating-Cooling Council's 1960 program to advance the sales of hydronic (wet) heating and cooling systems.

A "united industry approach" has been made possible by the reorganization of the council into two divisions to conduct both residential and commercial and industrial programs, explained retiring BHC President Marvin Mitchell, who is also vice president for sales, Weil-McLain Co. Local BHC groups will also be organized into the two divisions, it was explained.

"The hydronics industry is at war with the electric heat and the warm air heating interests for a profitable share of the heating market," Mitchell said. He also declared that the recent action of the Mechanical Contractors Association of America and the National Association of Plumbing Contractors in joining the national BHC were further indications of the new united effort behind the hydronic industry's promotion program.

Both contractors and manufacturers present at the council meeting applauded the formation of the new Commercial and Industrial Division. They pointed out that hydronics systems at present account for a relative small percentage of the household market, and while it is desirable to increase this, the hydronics field may have a bigger stake in protecting its interests in the commercial and industrial market, where it has the major share of the business, but also where other forms of heating and cooling are making strong drives for a bigger cut of the business.

Hydronics industry sales for the first nine months of 1959 were up about 15% over the same period in 1958, reported BHC Executive Director Franklin Greene. BHC's budget for hydronic promotion during 1959 will be the largest in the council's history, Greene said.

"Next year will be the biggest year ever for hydronics," Greene claimed. "The national's expanded budget combined with the increasing funds raised by a growing number of local coun-

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BEHIND PAGE ONE . . .

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Electric Heat

Utilities Don't Care What System Is Used, Just So It's Electric, NWAHACA Told

ST. LOUIS — "The electric utility industry stands ready to support any and all kinds of electric heating applications that will give our customers value received for their electric dollar, whether the installation is resistance room heating, the heat pump, or some other method of central home heating and cooling," declared E. O. George, vice president, Detroit Edison Co., in a talk at the 46th annual convention of National Warm Air Heating & Air Conditioning Association.

"We don't care what the system is—just so it does the job and just so it's electric," he emphasized. "We are interested in selling the idea of electric heating—not the method—any more than you want to fight the battle of the fuels," he told the warm air group.

"We are aware that the public is gradually making complete air conditioning just as basic a need as warmth alone has been," he also said. "They have proven this by the great number of air conditioner sales in all parts of the country, and by their virtual insistance on air cooling in business places, factories, theaters, restaurants, and other commercial and industrial buildings.

"We would certainly subscribe to the fact that the ultimate system must meet every requirement in the definition of air conditioning—that is, it must treat air so as to control simultaneously its temperature, humidity, cleanliness, and distribution to meet the requirements of a conditioned space," George declared.

"Thus far, in a single integrated system, the heat pump

(Concluded on Page 4, Col. 5)

American Institute of Architects Board Endorses Retained % Formula

WASHINGTON, D. C. — The board of directors of the American Institute of Architects has endorsed a retained percentage formula recommended recently by a committee of the construction industry.

At a meeting in Portland, Ore. last month, the board took the following action:

"Resolved, that the board herewith endorses the recommendation that architects give serious consideration to the adoption of the policy of retaining a maximum of 10% of the certified contract price until 50% of the work has been completed, at which time no further retainage would be exacted, if the architect is satisfied with the performance of the contractor."

Edmund R. Purves, executive director of the AIA, told the NEWS that this action "has been published to the entire membership" of the institute "as a recommendation of our board of directors."

In commenting on this development, the National Association of Plumbing Contractors said that it and other construction industry organizations

(Concluded on Page 4, Col. 3)

G-E Motor Price Hike Won't Hit Small Compressors

FT. WAYNE, Ind.—Effective Jan. 11, General Electric Co. will increase prices 4% for all motors it builds in NEMA 66 and small fractional horsepower frames.

This does not include those motors used to power hermetically sealed refrigeration compressors used in household refrigerators and small air conditioners, electric sinks, and home laundry equipment, stated H. A. MacKinnon, General Electric vice president and general manager of the electrical component products division here.

The increase which goes into effect next month will be the

(Concluded on Back Page, Col. 4)

October Wholesaler Sales Rise 14% Over 1958 Period

WASHINGTON, D. C.—October sales of air conditioning and commercial refrigeration equipment distributors were 14% higher than a year earlier and 4% lower than a month earlier, according to the monthly wholesale trade report issued by the Census Bureau.

For the first 10 months of 1959, the distributors' sales rose 10% over the corresponding period of 1958.

Sales of plumbing and heating equipment and supplies distributors in October were 4% ahead of the same month a year ago and 3% higher than September. For the January-October period, their sales rose 14% from the like year-ago period.

Top Court To Review Union Suit Regarding Company's Right To Subcontract Work

WASHINGTON, D. C. — The U. S. Supreme Court has agreed to review a case involving a dispute between the Steelworkers Union and a subsidiary of United States Steel Corp. over whether the company has the right to subcontract work without going to arbitration with the union.

The case concerns the right of the subsidiary, Warrior & Gulf Navigation Co., to subcontract work, previously done by members of the union, without consulting the union. The company contends that subcontracting is a management function not covered by its labor contract.

The union filed suit to force arbitration. It charged that the subcontracting is designed to discriminate against its members. A lower court rejected the suit, but the Supreme Court agreed to rule on whether the lower court based its decision on the merits of the complaint rather than just deciding the arbitration issue.

Seek Donations for Hospital Air Conditioning

HEPPNER, Ore.—Mailing of some 1,000 pledge cards and letters launched a drive to raise funds for installation of an air conditioning system at Pioneer Memorial hospital.

Installation cost was estimated at $20,000. A previous gift of $5,000 from Heppner Pine Mills, Inc., left $15,000 to be raised, according to the recent report.

Sun Power Cooling Experiment

Principle Is Similar To Gas Refrigerator; Correct Water-Ammonia Compound Is Problem

ATLANTIC CITY, N. J.—An experiment using the sun's heat to power air conditioning units was described at the annual meeting here of the American Society of Mechanical Engineers.

In a paper presented at the meeting, Melvin M. Eisenstadt, the Martin Co., Orlando, Fla., and Frank M. Flanigan and Erich A. Farber of the University of Florida, said that using sunshine to power an air conditioning unit is a logical idea, since the hotter the sunshine, the more power it provides and the more heat a solar air conditioning system could remove. This provides peak efficiency when most needed.

The experimental unit they used works on much the same principle as a gas refrigerator, but instead of heat being supplied by a gas flame, it is supplied by the rays of the sun. The absorption process relies on a mixture of water and ammonia gas which is alternately separated and remixed.

In practice, heat from the sun would be gathered by a "flat plate collector," which can be installed on the roof or near a building. Such collectors are relatively simple and inexpensive, it was indicated.

One problem on which the authors are working is finding the concentration of ammonia to water which would work best when the heat source is around 140 to 180° F., much lower than the temperatures of a gas flame usually used in such systems, but easily obtained with current solar heaters.

They concluded that solar powered air conditioners are technically feasible, if high concentrations of ammonia, from 40 to 70%, are used in the absorption system.

Copies of the paper (#59-A-276) are available at 80 cents each (40 cents to members of the society) from the Order Dept., ASME, 29 W. 39th St., New York 18, N. Y.

Plastics Meeting Papers To Interest Heating, Cooling Men

STAMFORD, Conn. — Papers of special interest to design and installation engineers in the air conditioning and heating industries will be presented at the 16th national ANTEC meeting of the Society of Plastics Engineers, Jan. 12-16, in the Conrad Hilton hotel, Chicago.

A special session will be devoted to urethane foams, which are said to offer great promise as an insulating material. Sandwich-type constructions utilizing urethane foam will be featured.

Franklin L. Fine, SPE 16th ANTEC general chairman, said that at the meeting, important new developments, experimental processes, and methods of evaluating and processing present-day plastics will be thoroughly covered in the 82 papers to be presented and discussions that follow.

Central theme of the meeting is "Professional Achievements and Approaching Opportunities in the Growth of Plastics Engineering."

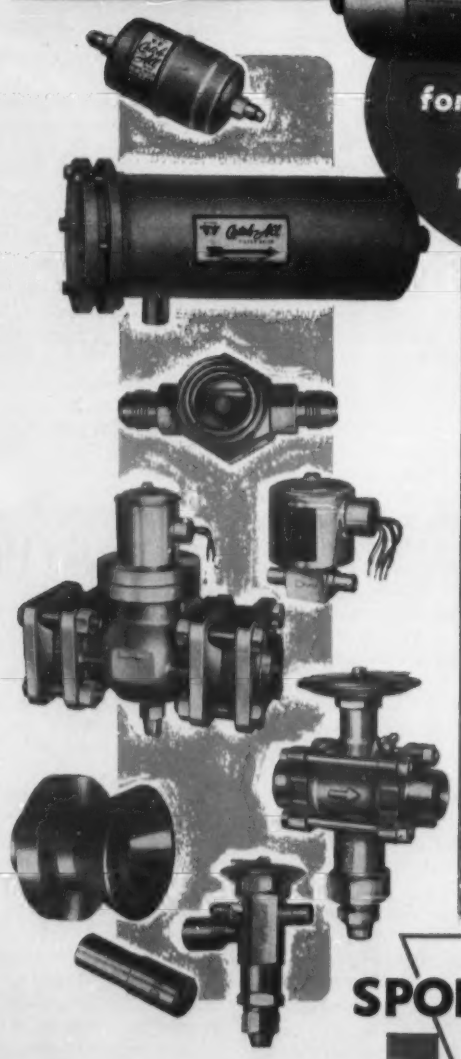
Clark Bridgman Dies

ARCADIA, Calif. — Clark Bridgman, for many years agent for Bush Mfg. Co. (now part of Dunham-Bush) in 13 midwest states, died at his home here where he retired some years ago.

Bridgman was a veteran in the field of mechanical refrigeration, having been with Frigidaire sales organizations in New England before moving to Chicago to take over Bush representation in that area.

Every Air Conditioning Installation *deserves* SPORLAN PEAK PERFORMANCE... *Right Down the Line*

for no matter how large or small the installation... there's a Sporlan combination engineered to fit it PERFECTLY!



Sporlan Catch-All filter-driers with the famous molded porous core, keep systems perfectly clean, perfectly dry and acid free!

Sporlan's amazing new See•All moisture & liquid indicator shows whether the refrigerant is wet or dry and if the system is fully charged.

The superior design of **Sporlan Solenoid Valves** with Blue Seal Coils gives high MOPD ratings, permitting them to be used on applications with either refrigerants 12 or 22.

The Flow-Master element, exclusive with Sporlan Thermostatic Expansion Valves for air conditioning, minimizes valve hunting and smooths out evaporator performance.

Sporlan Refrigerant Distributors with the versatile interchangeable nozzles, not only permit a wide range of coil applications, but give uniform distribution to any number of circuits regardless of load or evaporator temperatures.

So... whether your next air conditioning job is large or small, buy Sporlan throughout and get Peak Performance Right Down the Line!

See your Sporlan Wholesaler today.

SPORLAN VALVE COMPANY
7525 SUSSEX AVENUE
ST. LOUIS 17, MO.

EXPORT DEPT. • 85 BROAD STREET • NEW YORK 4, N. Y.

Our 25th Anniversary... 1034-1050

Smaller size lighter weight easier to install

complete line ¾ H.P. through 7½ H.P. ••• only three base lengths ••• connections easy to reach from one side ••• for single or rack-type installation ••• motor-compressor mounted on condenser-receiver ••• cleanable shell-and-tube condenser ••• accessible hermetic motor-compressor •••

NEW COPELAMETIC "W-LINE" water-cooled condensing units are more profitable to install and maintain ••• take less space

W-200H-2 H.P.
LENGTH 30" DEPTH 14½"
HEIGHT 20⅞"

B.T.U. per Hour Capacity

R-12 MODELS
Without Heat Exchanger

APPLICATION	H (HIGH TEMPERATURE)					C (COMMERCIAL TEMP.)					L (LOW TEMPERATURE)				
Evap'g. Temp.	Comp. Motor-	45° F.	35° F.	25° F.	15° F.	Motor-Comp.	25° F.	20° F.	5° F.	0° F.	Motor-Comp.	-5° F.	-15° F.	-25° F.	-40° F.
Suct. Press.		41.7#	32.8#	24.8#	17.7#		24.6#	21.1#	11.9#	9.2#		6.7#	2.4#	2.3" Vac.	10.9" Vac.
W-75-	KM-75	10450	8500	6800	5275	KG-75	7450	6650	4575	4000	KK-75	4750	3600	2620	1440
W-100-	KJ-100	13750	11200	8950	7000	KK-100	10550	9400	6500	5675	KSL-100	7175	5475	4075	2350
W-150-	KL-150	19400	15900	12800	10100	KSL-150	15050	13450	9425	8275	A6-150	9350	7100	5250	2950
*W-200-	AR6-200	27100	21800	15200	13200	A8-200	21450	19150	13100	11400	3A5-200	13500	10000	7300	4000
W-300-	3R42-300	40200	32800	26200	20500	9A6-300	30350	27150	19050	16750	9SG-300	19100	14500	10550	5800
*W-500-	MRF-500	67900	53700	41800	31700	9R38-500	51400	45400	30900	24900	9A9-500	32200	24100	17000	8900
*W-750-	9R9-750	108800	87000	68000	53000	9R9-750	68000	60000	40500	35100					

Capacities are at 100°F. Condensing Temperature with 65°F. Suction Gas into The Compressor
Increase Capacity 6% for each 10°F. Lower Condensing Temperature
Decrease Capacity 6% for each 10°F. Higher Condensing Temperature
*Capacities Are Tentative For These Models

Out on the job, you'll find the new Copelametic "W-Line" water-cooled condensing units packed with important extra features simplifying both installation and maintenance. And, you can always count on Copeland for top output, efficiency, dependability. Send for specifications on the new Copelametic "W-Line" . . . easiest water-cooled condensing units to install and maintain, best all-round performers.

Bulletin 5005

NEW COPELAMETIC "A-LINE" . . . Improved installation and maintenance features are also found in the new Copelametic "A-Line" air-cooled condensing units. Write for specifications and performance data.

Bulletin 5006

SINCE 1918

Copeland
REFRIGERATION CORPORATION, Sidney, Ohio

ARI Random Tests--

(Concluded from Page 1, Col. 2)

knows when or what model of his output will be subjected to test), the ARI feels that it is certain to 'keep tab' on all participating producers, and there are teeth in the contract which they have signed with ARI which can result in withdrawal of the privilege of using the certification seal if their products do not meet the rigid tests, and they do not make suitable adjustments to conform."

Said Geo. S. Jones, Jr., ARI managing director:

"We feel that the fact that units are actually being tested on a routine scale, and that a number have already been tested, is of sufficient importance to keep all units in line with provisions of the applicable ARI Standards, and up to the advertised capacity ratings."

Meanwhile, the Jan. 1 directory of certified units is being readied for the press, and will list the units of more than 50 participating manufacturers, representing almost 90% of all U. S. production of this type of equipment, it was stated.

"This program is designed to provide enforcement authority to the applicable ARI Standards," Jones said. "We feel that it is an aid to contractors, distributors, architects, dealers, and purchasers of unitary air conditioners. It gives them the assurance that the equipment they are specifying or buying will meet the requirements it claims to meet.

"We believe that this program offers proof of our industry's 'coming of age,' and we believe it will eliminate unrealistic claims upon which the purchaser has, at times in the past, been unable to make necessary comparisons," he added.

Retained Percentage Formula--

(Concluded from Page 1, Col. 3)

"have apparently won an important round in the campaign to win nationwide acceptance of a reasonable retained percentage formula for building construction contracts."

A committee of the construction industry had presented to the AIA directors for their consideration a statement encouraging "an extension to private work, wherever possible, of such retained percentage procedures as now prevail on Federal public works.

"Such retained percentages would be at the rate of 10% until 50% of the job is completed, after which there should be no additional retainage, provided that the work has proceeded to the satisfaction of the architect and/or the owner."

As reported in the Nov. 30 issue of the NEWS, presentation of the statement to the AIA board was voted at a meeting in Washington, D. C. of construction industry groups with officials of the AIA. Among groups represented at this meeting were the NAPC, the Air-Conditioning & Refrigeration Institute, the Mechanical Contractors Association of America, and the Refrigeration & Air Conditioning Contractors Assn.

The NAPC said that the action of the AIA directors "should free additional capital to contractors now tied up in excessive retainages." NAPC President Irvin L. Rechkemmer stated:

"While it may take time for this new policy of the AIA to be accepted in every architect's office, its eventual adoption as standard policy is inevitable."

Electric Heat--

(Concluded from Page 1, Col. 4)

appears to meet this requirement when coupled with an electronic air cleaner, deodorizer, and dehumidifier," he said. "In cooler climates where most homes require some resistance heating to supplement the heat pump, this can be provided with baseboard units or in-duct heaters."

George emphasized, however, that "our thinking is not restricted to either the heat pump or room type resistance units as the only ways to heat electrically."

Electric Heating Growth Cited

Noting that the number of buildings heated electrically with resistance type equipment will have grown from 300,000 in 1957 to an estimated 692,000 by the end of 1960, George offered three reasons for this increase: (1) "the public is demanding it," (2) the four out of 10 utilities who now have summer peak loads want to build their winter peaks, (3) "a company—or an industry—that stands still is beginning to lose ground."

Long-range forecasts for electric heating, George also pointed out, see as many as 4,000,000 homes using it by 1968, and perhaps 20,000,000 by 1978.

Although most of George's talk had conciliatory overtones, he quoted "one of our major competitors" as commenting: " 'The electric people mean business, and they have the know-how, the aggressiveness, the money, and the unity of purpose to achieve the results they want.' "

Cites Past Differences

George also expressed the view that "in the past I believe our industry and yours may have been at odds in our promotional efforts because of the mistaken impression that it was not to our mutual advantage to work together."

Some "oversights" made by Detroit Edison in past advertising on electric heat were admitted by George, but he also called attention to "objectionable" advertising by the "plumbing and heating industry" on the same subject.

"We think there is a need for a national coordinating group which will serve as the focal point in bringing together the interests of utilities, manufacturers of heating equipment, heating contractors, and every other one of our industry allies who want to share in this market," George suggested.

"We hope that such a group can be organized, perhaps through our Edison Electric Institute, for we feel that adequate communication is one of the greatest needs," he said.

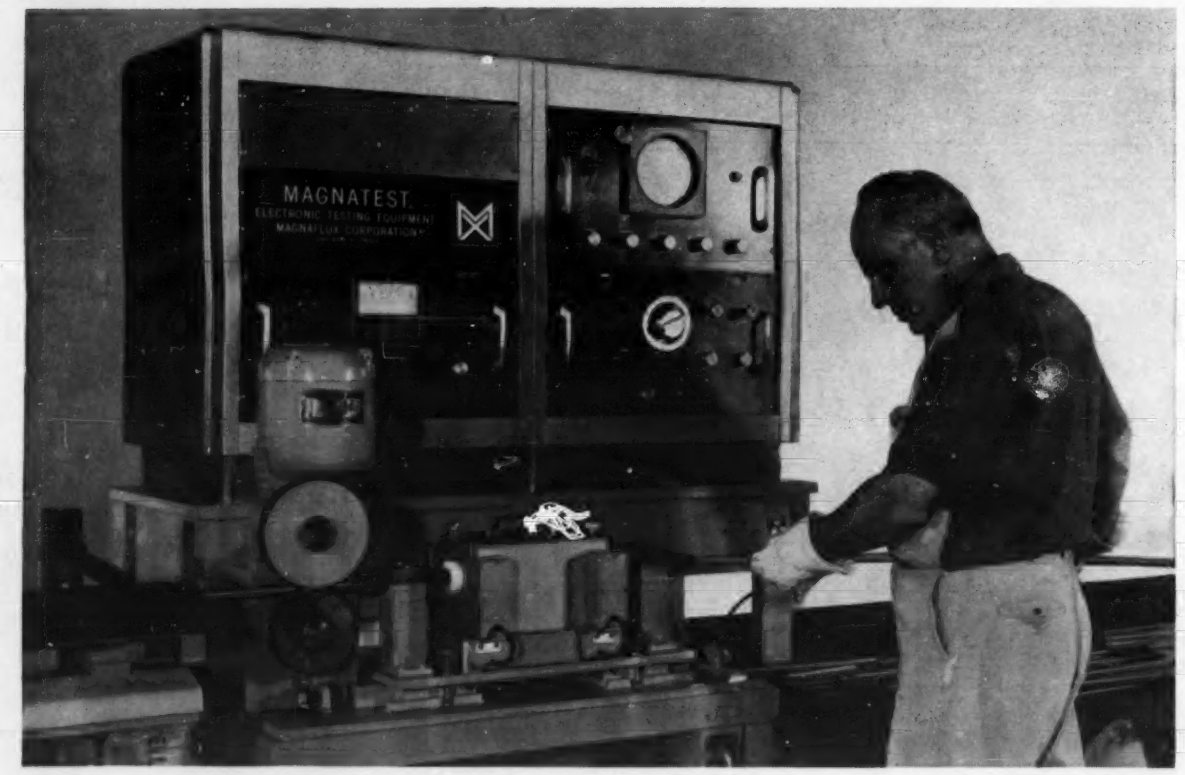
Welbilt Acquires--

(Concluded from Page 1, Col. 2)

and residential markets.

Hirsch said the purchase provides Welbilt with complete facilities to produce self-contained packaged air conditioners for the commercial and industrial markets, and forced-air heating equipment in gas and oil-fired models for residential market.

Why eddy-current testing gives you consistent soundness in Anaconda thin-wall tube



Many years of experience with eddy-current testing have enabled Anacond to develop meaningful inspection standards

Through its long association with the air conditioning and refrigeration industry, Anaconda knows the importance of top quality in thin-wall copper tube. From billet to finished tube, quality-conscious practices control production. Critical and realistic standards govern inspections.

Eddy-current testing is one of the important reasons why Anaconda thin-wall copper tube consistently meets the industry's rigid quality requirements. Anaconda pioneered in developing the application of this valuable tool to the inspection of copper tube, during 10 years of research on electronic testing.

This extensive development work—involving the hydrostatic expansion of literally thousands of tubes—has enabled Anaconda to establish practical eddy-current inspection levels for meaningful inspection standards.

Tubes that do not meet these standards in the eddy-current test are *automatically* segregated—so that there is no chance for human error.

Quality tube and creative technical services. Whether you need hard or soft thin-wall copper tube, capillary or restrictor tube, or bulb and tube assemblies, Anaconda has the experience and facilities to produce the quality tube you require for economical manufacture. For further information or technical assistance, write: French Small Tube Division, The American Brass Company, Box 1031, Waterbury, Connecticut.

ANACONDA® **COPPER TUBE** *for Refrigeration and Air Conditioning*
Made by The American Brass Company

Advantages, Installation of 'Thermobank' Discussed Before Detroit Contractors

By Frank J. Versagi

DETROIT — "Factory run-in of the completely assembled compressor packages we produce is the key factor in assuring immediate operation at optimum performance when they reach the field," stated S. C. Segal, sales manager, Kramer Trenton Co., in a talk before some 60 contractors.

Exemplifying the procedures used, Segal mentioned the running-amp check on the compressor, the check for continuity in all wiring.

In discussion and in answer to questions, Segal made the following key points in his discussion of Kramer Trenton's "Outdoor Compressor."

"We have never had occasion to use crankcase heaters on the 'Thermobank' compressor, no matter what the ambient conditions.

'Never Had Occasion To Use Crankcase Heater'

"Thermobanks are available for low temperature applications, and for applications at 30°, 25°, 20°, and 10°.

"A complete 'Unicon' unit with compressor weighs less than a well constructed water tower with its water load.

"*System capacity,* not the capacity of individual components, is determined and published.

"By using two or more compressors with common suction and liquid lines, we get maximum flexibility and control. Three 5-ton hermetic compressors, so coupled, can match the capacity of a 25-ton open compressor," Segal claimed.

Application of Components Discussed

Segal spent much time discussing the application of components, such as sight glasses and vibration eliminators. He stressed the ease of installation of Kramer units.

"When you run the electrical lines to the control panel, everything in the panel is ready to function.

"A line from a panel terminal to the evaporator fan motor is the only other electrical work required."

24-Hp. Low-Temp Job Installed In 24 Hrs.

With the installation of the refrigerant lines and the hot gas line for Thermobank operation, the job is complete, he stated, and cited the installation in 24 hours of a 24-hp. low temperature installation in Philadelphia, "a job which has taken as long as nine days with conventional equipment."

Other comments:

"Vibration eliminators *must be anchored.* It is useless to install such a device, if you are going to let it whip until it breaks.

"The sight glass should be upstream of all miscellaneous pressure reducing devices, such as driers and valves. On our smaller units, we place the sight glass right on the receiver; on larger units, the sight glass is shipped separately with instructions to mount it immediately downstream of the receiver valve," Segal said.

"All our receivers have a purge valve to allow easy bleed-off of non-condensables. Each purge valve has a pressure relief device."

The meeting was co-sponsored with Kramer Trenton by Deke Jones Co. and Lee Equipment Co., both of Detroit.

L. J. Wing Names Crawford E. Steiss

LINDEN, N. J.—Crawford E. Steiss has been named vice president for sales of L. J. Wing Mfg. Co. here, division of Aero Supply Mfg. Co., Inc.

C. E. Steiss

Wing makes heating, ventilating, and combustion equipment.

Steiss comes to Wing after 14 years with Sheldon's Engineering, Ltd., of Canada.

Heating Contractor Convicted of Trying To Get Money Under False Pretenses

LOUISVILLE, Ky. — Van Kiser, Jr., owner of Kiser Heating Co. here, recently was found guilty by a Criminal Court jury of attempting to obtain money under false pretenses. The jury recommended a fine of $500.

Kiser was accused of misrepresenting the condition of a furnace in the home of Miss Ida Korfhage, 77, of 4513 S. Third, so he could repair it.

Assistant Commonwealth Attorney Thomas Burton introduced into evidence a copy of a contract between Kiser and Miss Korfhage in which Kiser agreed to repair the complainant's furnace for $200.

Burton called witnesses who testified there was nothing wrong with the furnace.

However, Kiser denied that he misrepresented the condition of the furnace when he examined it in October, 1958. He said there was a gas leak at that time.

are vibration free··sleeve or ball bearing

Today, many motors are installed in areas where noise must be held to a minimum — in hospitals, churches, schools, office buildings, restaurants and similar locations where quiet is essential or desirable.

Such installations have created a need for larger polyphase motors that are exceptionally quiet and vibration-free. Wagner has filled this need by expanding its line of polyphase resilient mounted motors to include standard ratings through 10 hp.

If you have an application that calls for a smooth running motor, cushioned by resilient mountings, it will pay you to specify these Wagner Motors—a complete range of ratings from 1 through 10 hp.

Constant research and development have kept Wagner up front in electric motor design for more than 65 years—made the name Wagner one you can trust in choosing electric motor drives.

Your nearby Wagner Sales Engineer can help you select the *right* motor to meet your requirements. There are Wagner branch offices in 32 principal cities.

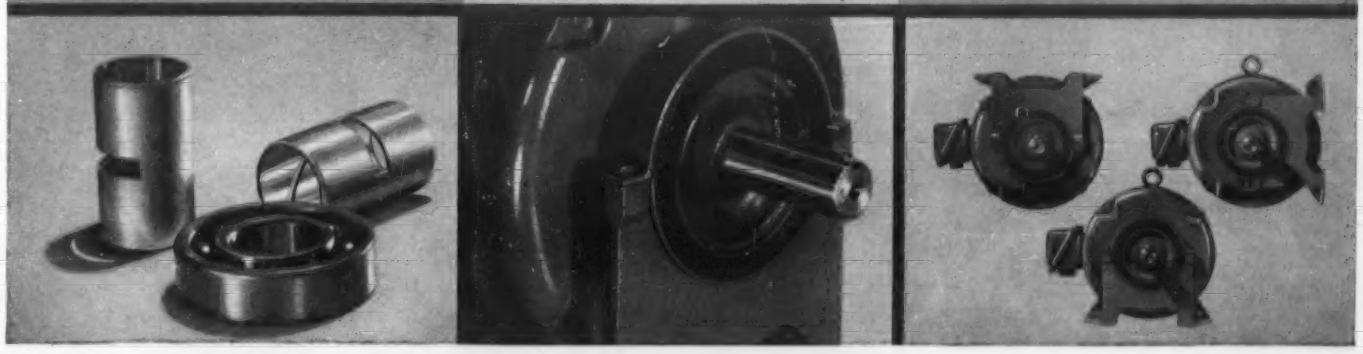
Wagner Electric Corporation
6441 PLYMOUTH AVENUE, ST. LOUIS 14, MISSOURI

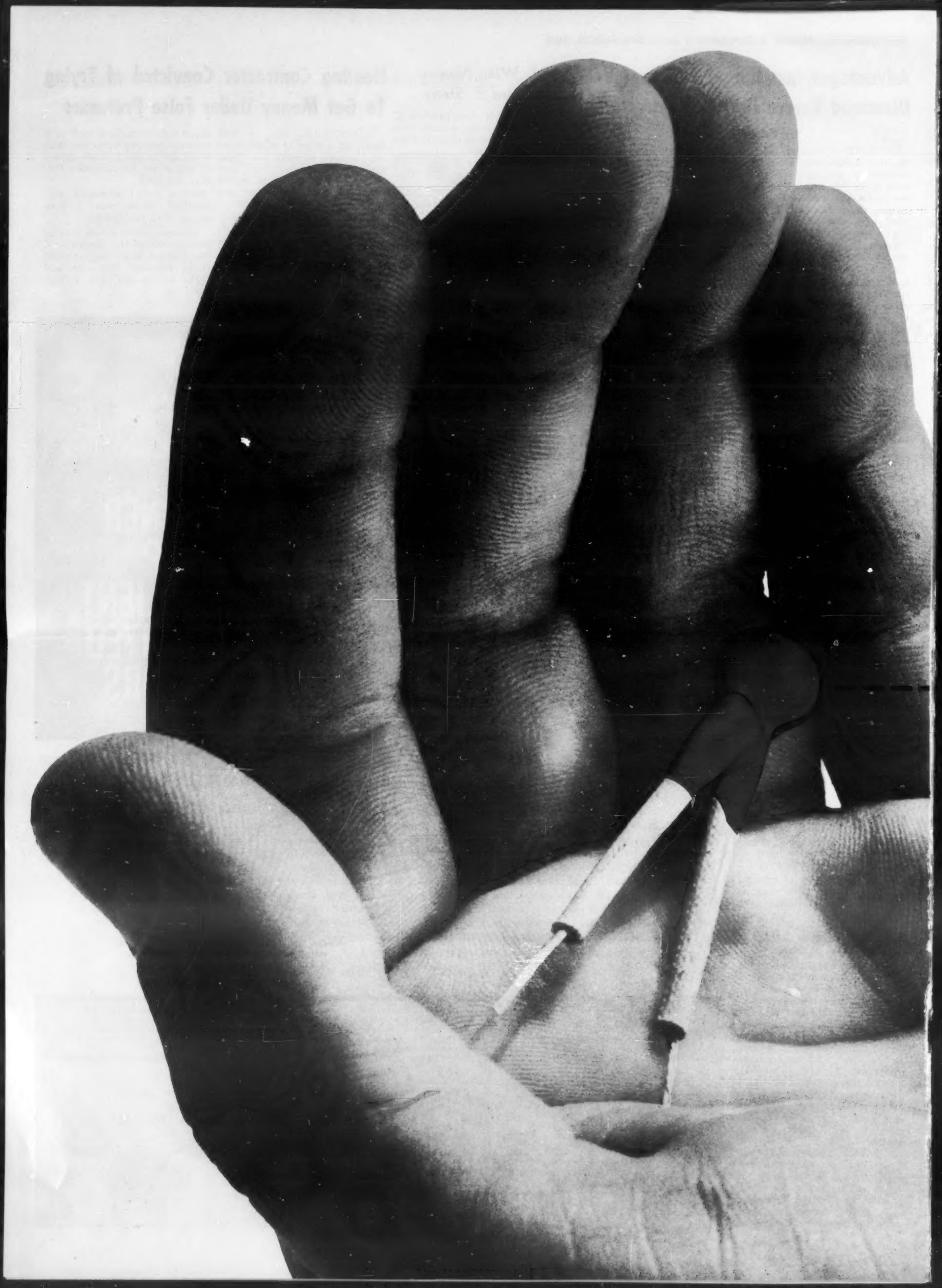
WH59-13

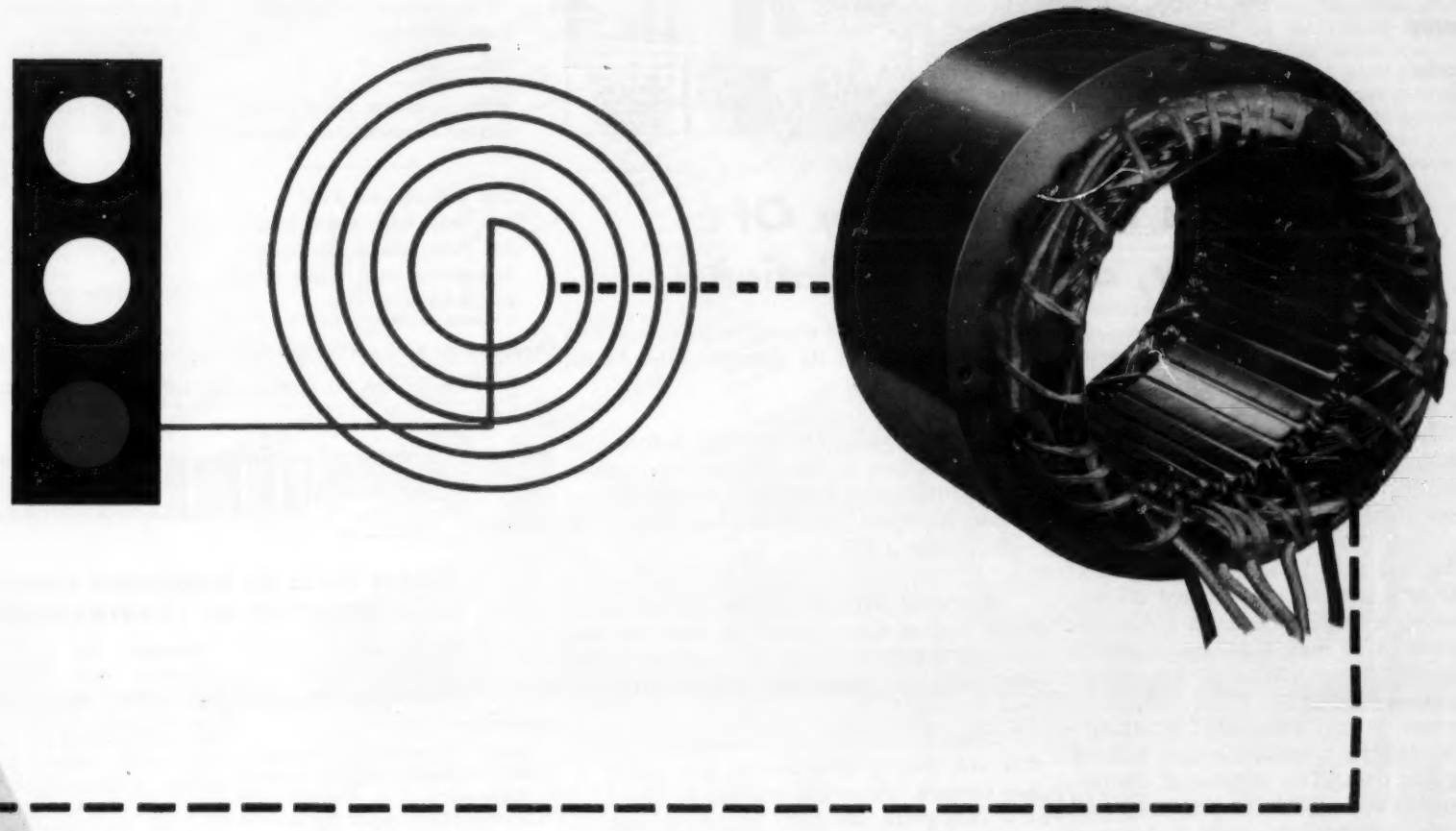
SLEEVE OR BALL BEARING. These motors are furnished with quiet running steel-backed babbitt lined sleeve bearings that have high load carrying capacity. Ball bearings can be supplied when desired.

NEOPRENE CUSHIONING RING. Annular mountings, of neoprene bonded to steel rings, cushion the motor in its cradle base to absorb the small amount of vibration that remains in the most carefully balanced motor.

CEILING, SIDEWALL OR HORIZONTAL MOUNTING. You can mount these motors on walls or ceilings by rotating the cradle base 90° or 180°. The motor is designed to remain completely drip-proof in any horizontal position.







New Westinghouse GUARDISTOR motor stops motor failure caused by excess heat

At last, positive protection against motor overheating with this unique Westinghouse motor development. Smaller than an aspirin, the heart of the Guardistor* motor is a PTC† Thermistor embedded in the motor windings to sense temperature rise immediately.

With normal motor temperatures, the thermistor has low resistance which remains nearly constant up to a predetermined critical temperature. At this temperature, a 100 to 1 or more increase in resistance occurs for a small increase in temperature. The resistance stops current flow activating a control designed to "WARN" or "STOP" a motor failure.

The Guardistor motor and associated control integrates all heat-causing factors of load, ambient, and power supply right in the motor windings to give you complete protection against motor burn-out.

*Trade-Mark
†Positive Temperature Coefficient

J-22155-A

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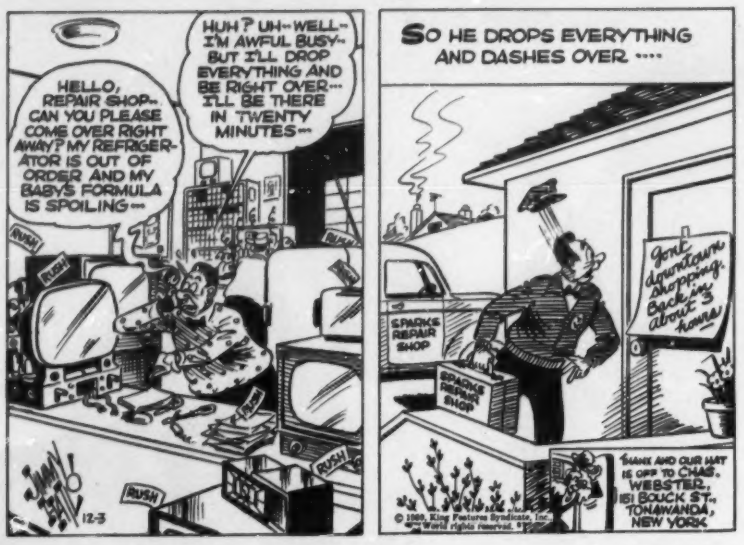
They'll Do It Every Time

by

Jimmy Hatlo


HELLO, REPAIR SHOP-- CAN YOU PLEASE COME OVER RIGHT AWAY? MY REFRIGERATOR IS OUT OF ORDER AND MY BABY'S FORMULA IS SPOILING---
HUH? UH--WELL-- I'M AWFUL BUSY-- BUT I'LL DROP EVERYTHING AND BE RIGHT OVER--- I'LL BE THERE IN TWENTY MINUTES---
SO HE DROPS EVERYTHING AND DASHES OVER ....
Gone downtown shopping. Back in about 3 hours
SPARKS REPAIR SHOP
THANK AND CUR HAT IS OFF TO CHAS. WEBSTER, 151 BUICK ST., TONAWANDA, NEW YORK
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Christmas 1959 — A Day Of Prayer, Joy, and Contemplation

CHRISTMAS traditionally calls for re-unions of relatives, re-dedication toward selfless ideals, and loving generosity.

With these purposes in mind, again this editorial page substitutes for its petty fulminations and pettifogging analyses of much better thing—a *petite anthology* of quotations from wiser men. Herewith:

• • •

But he that hath looked into the perfect law of liberty, and hath continued therein, not becoming a forgetful hearer, but a doer of the work; this man shall be blessed in his need.—*St. James 1.25.*

• • •

Too often, people have felt Christianity was a miracle drug to make life easy without suffering and pain. The purpose of Christianity is not to avoid difficulty, but to produce a character adequate to meet it when it comes. It does not make life easy; rather, it tries to make us great enough for life. It does not give us escape from life's burdens, but strength for meeting them when they come.—J. L. CHRISTENSEN.

• • •

We shall win the respect of other nations faster if we spend less time telling the world what America makes and more intelligent effort in interpreting to the world what makes America.—REV. DR. RALPH W. SOCKMAN.

• • •

Criticism tears down, destroys, and makes the heart and countenance old and tired. It foments distrust between persons. On the other hand, praise quickens, inspires, and renews, not only one to whom it is directed, but the one who gives the praise.—PRES. DWIGHT EISENHOWER.

• • •

The boat of human life is rowed with two oars—work and worship. Use only one oar and you row around in circles.—REV. BILLY GRAHAM.

• • •

He that diggeth a pit, shall fall into it: and he that setteth a stone for his neighbour, shall stumble upon it; and he that layeth a snare for another, shall perish in it.—*Ecclesiastes 27:29.*

• • •

A little explained, endured, forgiven, and a quarrel is cured.—WINSTON CHURCHILL.

• • •

Our temper gets us into trouble and our pride keeps us there.—ARNOLD H. GLASGOW.

One of the great strengths of this nation is the diversity of its citizens.—DR. JAMES R. KILLIAN, JR.

• • •

Religion clean and undefiled before God and the Father, is this: to visit the fatherless and the widows in their tribulation, and to keep one's self unspotted from this world. —*St. James 1:27.*

• • •

Happiness doesn't depend on what we have, but it does depend on how we feel towards what we have. We can be happy with little and miserable with much.

• • •

When Sophie Tucker "conquered" London she was queried as to the secret of her success. Reported Sophie:

"You gotta use your brains, of course, but darlin', most of all you gotta love people!"

• • •

If we could only see life in its true perspective, we should realize that what we call misfortune, however unpleasant, is not necessarily an ultimate misfortune at all and may very well prove in the end to be the opposite.—ARTHUR BRYANT, *Illustrated London News.*

• • •

And other sheep I have, that are not of this fold: them also I must bring, and they shall hear my voice, and there shall be one fold and one shepherd.—*St. John 10:16.*

• • •

O Lord of humans, make my master faithful to his fellow men as I am to him. May he be open-faced and undeceptive as I am, may he be true to trust reposed in him as I am to his; give him a face cheerful like unto my wagging tail; give him a spirit of gratitude like unto my licking tongue.

Fill him with patience like unto mine that awaits his footsteps uncomplainingly for hours; fill him with my watchfulness, my courage and my readiness to sacrifice comfort of life. Keep him always young in heart and crowded with the spirit of play, even as I—make him as good a man as I am a dog—make him worthy of me—his dog.—ANON.

• • •

In my Father's house there are many mansions. If not, I would have told you: because I go to prepare a place for you—*St. John 14:2.*

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'The Conscience of the Industry'

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A READER GIVES US SOMETHING CURRENT TO CONTEMPLATE AT CHRISTMASTIME

The Cincinnati
Air Conditioning Co.
Cincinnati, Ohio

Editor:

Many of our labor-management troubles could be avoided if both sides in a dispute took time to analyze what the results of a strike would be.

Here are the results of a very recent Cincinnati strike which lasted 10 weeks. It was the strike of union pipefitters against building and mechanical contractors which ran from June 1 until August 11.

There are always three segments of our economy affected by a strike—the striking workmen, the employers, and the public. Let's take a look at the results as they affected each group.

During the 10 weeks of work stoppage all hospital construction and improvements were halted, all schools and high schools under construction were dead; in fact, educators, administrators and public officials pleaded for a settlement so that desperately needed hospital beds could be installed and desperately needed school rooms could be ready for fall opening.

To the public this was a disaster. We must include also the slowdown in business and industry, such as at the new Kroger building, the Boone County Airport and hundreds of other important works.

Now consider the employers. Their rent, clerical expenses, and all other overhead became a complete loss, because these items continued for the full 10 weeks of the strike. They had no income.

Last, let's see how the worker came out. The strike was called, supposedly, for his benefit.

Demand No. 1 was for a ridiculous and illegal "hiring hall," which should have been settled by two lawyers. No. 2 was for a vacation plan. This, too, could easily have been settled because there were objections not only by the contractors but also by a great many of the workers themselves.

The money angle of the vacation plan was the real reason for the strike.

On May 31 the union was offered a 12½-cent-per-hour increase. This it refused. After 10 weeks an agreement was signed granting a 15-cent-per-hour increase. Now let's get the figures together.

In the 10 weeks these pipefitters were out, each journeyman would have earned $1,520 not counting overtime. This is based on his 1958 rate of $3.80 per hour for 40 hours, or $152 per week.

Each man gained (?) 2½ cents per hour over what he had been offered without a strike. That adds up to 20 cents per day or $1 a week—$50 per year. Since he actually lost $1,520 in wages, it will take him exactly 30 years and 21 weeks to break even.

So here we see that as usually happens, all three parties to the strike, employer, public, and worker, were badly hurt! In fairness to the officers and business agents of the union, I must say they did not precipitate nor recommend this ridiculous strike.

Can't we learn something from this?

ARTHUR RADTKE,
Chairman,
Refrigeration Contractors Association

15 Areas To Get PHCIB Training as 1960 Opens; Second Course To Train the Trainer Starts Jan. 10

CHICAGO — Immediately after the first of the year, the Plumbing-Heating-Cooling Information Bureau's Selling Fundamentals Course will be available to contractors and wholesalers in 15 market areas in all parts of the country.

Concurrent with the recent completion of the initial class to train industry representatives to take the program to contractors across the nation, Norman Wicks, executive director of PHCIB, announced that the second "Train the Trainer" course for 15 more industry rep-representatives will be held the week of Jan. 10 at the Del Prado hotel in Chicago. Reservations for the third class were being accepted.

Representatives of contractor associations, wholesaler firms and associations, and a manufacturer were enrolled in the first class.

First Trainees Plan Courses In Their Areas

Trainees planning to conduct the courses for contractors in their areas are:

James Voyce, representing an all-industry group (the local contractors' association and four wholesalers) from Grand Rapids, Mich., will conduct the Selling Fundamentals Course under their joint sponsorship with the cooperation of the Grand Rapids Board of Education.

His courses will begin in Grand Rapids the week of Jan. 18. Voyce hopes to run as many as four classes concurrently, on successive evenings of the week.

James Pease, also representing an all-industry group from Dayton, says plans of the Dayton contractors and wholesalers are to begin the course Jan. 12 and continue it through May 24. It will be held for the Dayton Master Plumbers Association at the University of Dayton. Additional courses, Pease said, will be held in New Bremen, Ohio, and in Lima.

Paul Werner, public relations manager for the Plumbing Contractors Association of Chicago, says he hopes to put the course to work as soon as possible in 1960, probably in February.

To Offer Course To Members, Non-Members

Robert B. Woodward, executive secretary of the Virginia Associated Plumbing & Heating Contractors, Inc., Richmond, already has plans for February, March, and April classes in the Richmond, Arlington, and Norfolk, Va., areas, where he'll present the Selling Fundamentals Course for contractors (both association members and nonmembers), and for manufacturers' and wholesalers' representatives. The association also plans to hold additional classes in other key cities in Virginia.

Crow L. Tucker, representing the wholesaler members of the PHCIB in Arkansas, will oversee presentation of the course in that state.

Warren Hoy, field sales supervisor of the Central Supply Co., Indianapolis, plans to put on the course for contractors with wholesaler salesmen as observers.

Wayne F. Karber, sales manager of the Lansing (Mich.) Supply Co., said his company will offer the course to contractors in that area early in 1960.

Steven B. Vogt, sales promotion and advertising representative from Wilkins Supply Co., Peoria, Ill., plans to give the course first to contractors in the Peoria area, probably sometime in February. When this has been completed, the company plans to extend the program to its branch in the Bloomington, Ill. area.

L. B. Moon, manager of the plumbing and heating department of Clowe & Cowan, Inc., Lubbock, Texas, said his company's plans are to hold the training course first for contractors in Lubbock and second for the company's dealers in Amarillo.

Joel Davis of Lee L. Dopkin, Inc., a Baltimore wholesaler, will conduct the Selling Fundamentals course for contractors in that area.

Trainees with plans to conduct the course for wholesalers to make the Selling Fundamentals course available for many more contractors are:

R. Louis Towne, executive director of the Plumbing & Heating Wholesalers of New England, Inc., who said it is his association's intention to use its first courses to train other trainers. This program is to start early in January for wholesaler salesmen of management representatives.

The region covered by the association will be divided into the following meeting centers: Boston, Worcester, Hartford, Providence, and Portland. Sessions are to be held every two weeks.

Donald Dickinson, manager of training for Noland Co., Inc., Newport News, Va., plans to develop the program among his company's branches.

Wide Coverage Planned In Southern California

E. K. Euler, consultant to the Plumbing Wholesale Institute of Southern California, plans to train trainers who in turn will conduct the course all over Southern California, probably under the auspices of one of the colleges. It will start early next year.

Lloyd Akerblom, assistant secretary of the Southern Wholesalers Association, Atlanta, said his association plans to use his training experience in instructing wholesaler organizations in the southeast. They in turn will instruct contractors.

A manufacturer attending the class, John Seabrooke, sales manager of the Carrollton Mfg. Co., Carrollton, Ohio, plans to take the course to his company's sales people.

Thinking of—

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- **expanding your territory**
- **taking on new lines—**

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Inside Dope

By GEORGE F. TAUBENECK

(Concluded from Page 1, Col. 1)

ist who devoted 60 years of his life — excluding nearly every other interest—to amassing in his London house more than a half-million Christmas cards published from 1843 onward.

A major part of the King collection, lost for nearly 40 years, now is part of the Hallmark Historical Collection, the largest privately-owned greeting card assembly in the world.

From this material curators have pieced together a remarkable record of what they call "the Golden Age of Christmas" —the Victorian years during which Christmas was revered and celebrated in a fashion unknown to any previous generation.

Jonathan King, whose father was an early specialty publisher in Britain, began his collection in the 1850's, only a few years after the first Christmas card was published.

That historic token, designed in 1843 by John Calcott Horsley (a widely known artist of the period) was unearthed in England last summer.

The Cole-Horsley card bears the now-universal greeting: "A Merry Christmas and a Happy New Year to You."

It depicts a joyous family seated at a Christmas dinner table — alongside vignettes of those typically American Christmas charities of feeding the hungry and clothing the needy —scenes that were to be repeated again and again on Christmas cards in subsequent years.

Albert, Queen Victoria's consort, introduced the Christmas tree to England in the same year that the first Christmas card was developed.

The prince, interestingly, was a close friend of Charles Dickens — who published his famous Christmas story in the 1840's— "A Christmas Carol."

It is to Prince Albert (who perhaps was pining among the staid Britons for the *gemuetlichkeit* of his native Bavaria) that we owe the inspiration for many Christmas customs now so firmly established in America.

Symbols of Christmas — the robin, Santa Claus, holly, mistletoe and carolers—first appeared during the reign of Prince Albert.

Christmas greetings of the Victorian era rival in beauty the finest productions of our own age of advanced technical skill.

Many of the most expensive artists on both sides of the Atlantic were employed to design them; and ingenious mechanical devices were originated to animate these cards, even as they are employed today.

In later years cartoonist Thomas Nast defined, once and for all, the configuration and characteristics of roly-polly, jolly old Santa Claus.

Clement Moore's "A Visit from St. Nicholas," written in 1822, suddenly achieved wide popularity half a century later.

Put all these antecedents together, and you arrive at a modern American Xmas.

The merriment surrounding Christmas in the last half of the nineteenth century—with all its attendant Christmas customs—resulted from the happily out-of-fashion demise of grim, unsmiling Puritanism—which had pervaded both England and the United States hitherto overlong.

Thank goodness for that! Happy Christmas to you all.

Holiday Admonition

"Hurrying doesn't save time. It is a symptom of disorganized, unpoised personality. Hurry is the precise opposite of poise," declares patient historian Arnold Toynbee. And, according to celebrated philosopher Will Durant, "No man in a hurry is quite civilized."

Take it easy while driving during the holidays, good friends.

Quotes of the Week

We have learned to fly in the air like birds, and swim in the sea like fish. We must also learn how to live and work together on earth like men. Someone remarked that if you live beyond babyhood in this age, chances are one hundred to one you won't be killed by kindness.—EUGENE P. BERTIN.

It's smarter to get set before you go ahead than to go ahead and get upset.—HAL COCHRAN.

Most of the money a businessman calls profits is merely money that has not been wasted. —A. V. BURDINE.

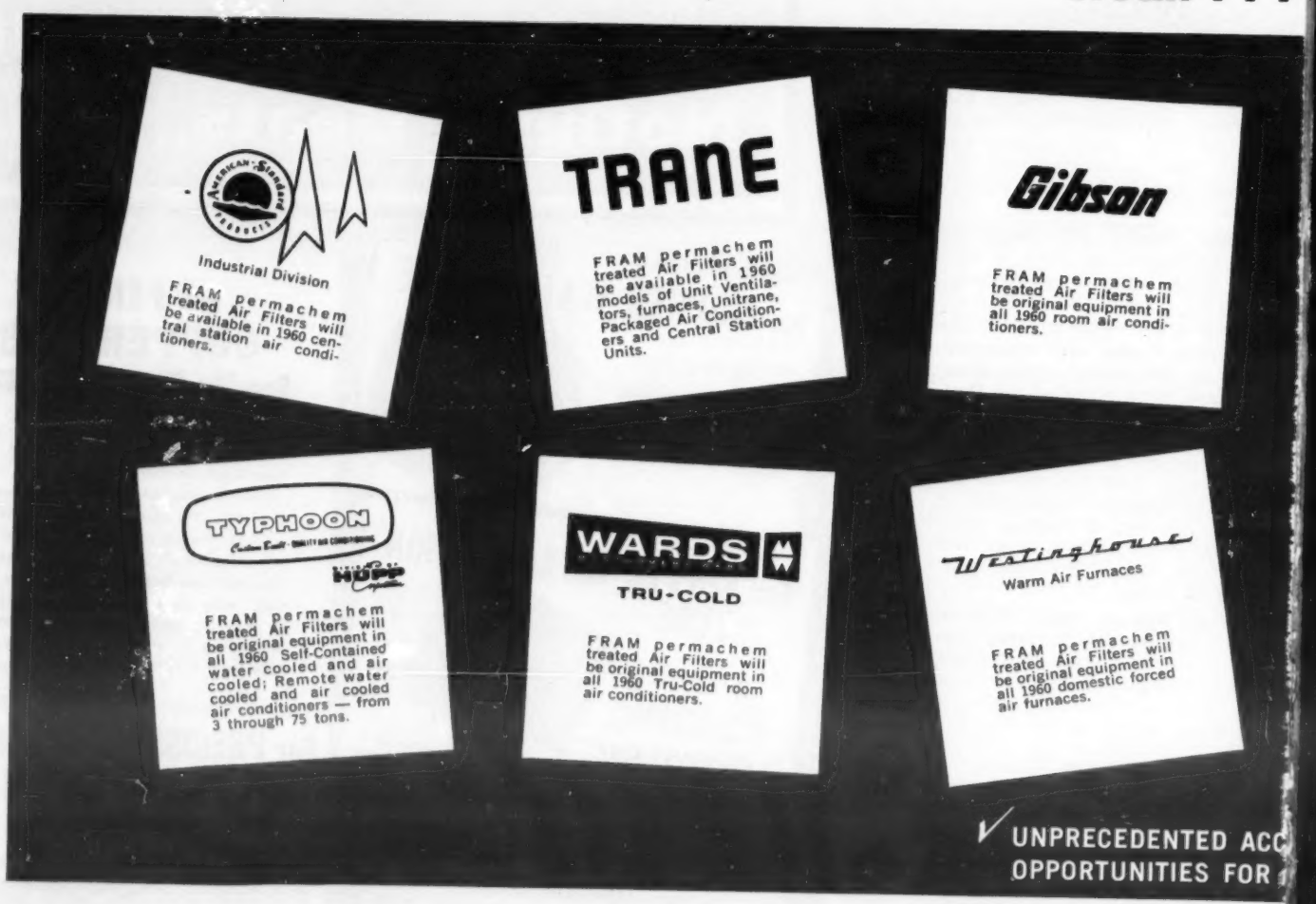
Old-timers recall when people worried about dying broke instead of living that way.—JOHN W. HANES.

Every age of life leaves us with an impression of dissatisfaction. Thank Heaven, the Supreme Manager has kept a happy surprise in store for us. Old age is a bonus. Everything that was missing in all the other ages can be found in the cellars of old age.—BERNARD FRANK.

The greatest importance of music is as a communication of the most significant, inspiring, spiritual messages that transcend the power of the written or spoken word. At this level music offers spiritual sustenance the world greatly needs in the automation era. Man is not an automaton. He is a spiritual being, and the nourishment of that spirit can be neglected only at our own very great national peril.—HOWARD HANSON, *Director of the Eastman School of Music.*

now 12 leading air conditioner and forced air new sales feature in their 1960 models . . .

➤➤➤➤ **These amazing filters kill clean . . .**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Get the facts today!

Kenmore Introduces Highside 'Kap-Kit', Heavy Duty Drier, and 'Dri-Vue' Unit

ATLANTIC CITY, N. J.—Three new products were unveiled at the 11th Exposition of the Air Conditioning & Refrigeration Industry by Kenmore Machine Products, Lyons, N. Y.

They are a "Hercules" molecular sieve heavy-duty drier with selective filtration; a high side "Kap Kit"—a complete capillary replacement assembly; and a "Dri-Vue" unit—the "Moisture Magnet" drier with liquid indicator.

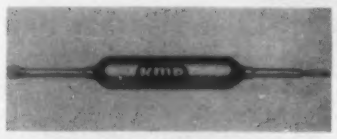
The new Hercules drier is designed for use on all systems up to 2 tons to eliminate "freeze up" hazards.

"Failures due to foreign materials such as acids, dirt, and sludge are removed by the Hercules' unique feature of four separate filter areas," the company said. "A double screen at the inlet traps all solid matter harmful to the system, and molecular sieves adsorb moisture and acids.

"The filtration system in the Hercules will not cause failure in the system by trapping elements that would otherwise pass through normally. For example, molecular sieves will not trap the oil additive TCP thereby robbing the compressor of its oil additive."

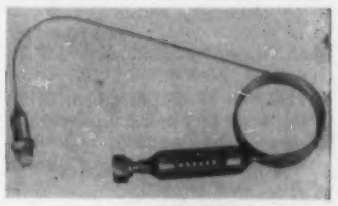
The high side Kap Kit includes KMP Moisture Magnet drier, correct size capillary, and strainer.

The drier has 100% molecular sieves of high temperature moisture holding qualities, it was stated. This permits the use of the drier on the high side of the refrigeration system with maximum efficiency, the company further points out.



Heavy Duty Drier

Dri-Vue Unit



Highside 'Kap-Kit'

Moisture Magnet drier will handle 48.5 drops of water under the heaviest loaded conditions, according to the company. Kap Kits are available in four sizes to handle all requirements up to ½ hp.

The company said the Dri-Vue unit "helps the serviceman three ways: (1) It controls his moisture problem; (2) it shows him at a glance the system is dry; (3) it tells him there is the correct refrigerant charge in the system."

The liquid indicator is composed of alternate, permanent, and changing color bars. When all the bars are the same green color the system is free of moisture, it was explained. When liquid line is full the rear port is magnified.

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FRAM permachem treated Air Filters will be original equipment in all 1960 room air conditioners . . . available in 1960 Hi-I Induction Conditioners, Multi-Jet Induction Conditioners, Model CF Fan Coil Conditioners, and Central Station Air Conditioners.

EPTANCE OF FRAM PERMACHEM TREATED AIR FILTERS OFFERS PLUS PROFIT DISTRIBUTORS AND DEALERS WHO SELL THESE LEADING PRODUCTS!

BIG ADS IN NATIONAL MAGAZINES INCLUDING THE SATURDAY EVENING POST, NEWSPAPERS AND RADIO TELL YOUR CUSTOMERS ABOUT THE ADVANTAGES OF FRAM PERMACHEM TREATED AIR FILTERS. LOOK FOR THIS SEAL FEATURED IN FRAM'S NATIONAL ADVERTISING AND BY ORIGINAL EQUIPMENT MANUFACTURERS. AVAILABLE TO YOU FOR PROMOTION AND MERCHANDISING.

FRAM Aire Corporation DIVISION OF FRAM CORPORATION, PROVIDENCE 16, R. I.

Service Managers Attend Carrier Training Meeting

SYRACUSE, N. Y.—Nearly 100 service managers from distributors representing the Unitary Equipment Div. of Carrier Corp. attended a national service training meeting here.

In welcoming the group, Russell Gray, vice president of Carrier and general manager of the division, emphasized the part service should play in promoting sales.

He promised continued Carrier efforts to minimize the need for service on new equipment and an all-out effort to help the distributor train additional competent service and installation personnel for dealers.

The service managers were introduced to new training aids, slides, and booklets on maintenance. They also were schooled in service procedures for several new products, some of which will be marketed in the next few months.

The meeting for distributor personnel was preceded by a meeting of Carrier field service personnel from regional and district offices. The meetings were directed by William Tyson, division service manager.

Stiles-Karlsonite Offers Brochure on Water Treatment

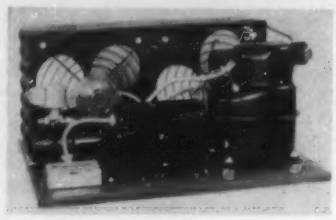
WAUKEGAN, Ill.—Copies of a new brochure on the treatment or conditioning of water with Karlsonite phosphate water conditioner may be obtained by writing to Stiles-Karlsonite Corp., 1550 Grand Ave., Waukegan, Ill.

This water soluble, complex, non-toxic, crystalline phosphate suspends and inactivates elements that would prove harmful and damaging to domestic, commercial, and industrial equipment, the company said.

NEWS readers are invited to write to the editor giving their opinions on any subject of interest to the industry.

B-W Bows 2-Hp. Refrigerant-12 Condensing Unit

● Expansion of its line of air-cooled condensing units with the release of a new 2-hp., Refrigerant-12 model has been announced by the Evansville Div., Bendix-Westinghouse Automotive Air Brake Co., Dept. AH&RN, 950 East Virginia St., Evansville 11, Ind.



This unit is said to be suited for high back pressure applications such as water chillers, bulk milk coolers, or air conditioning, as well as for general medium temperature applications.

"A special feature is the dual voltage liquid line solenoid valve that is factory mounted as an integral part of the unit," it was pointed out. "This facilitates the use of the pump down cycle which controls the accumulation of liquid refrigerant in the crankcase, preventing oil dilution and insuring against liquid pumping, thereby adding to the life of the compressor.

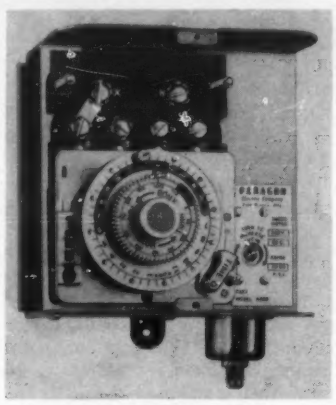
"The heavy duty pressure control eliminates the necessity for a starter or across the line contactor, and the dome mounted inherent overload protector insures maximum protection to the compressor motor under widely varying operating conditions."

Designated as model BRYH200T, the unit is designed for 230-volt, 60-cycle, single-phase operation.

More details on the products described on these pages may be obtained by writing the manufacturer at the address given in each story.

Defrost Control Automatically Varies Period

● Designed specially for use as a time initiated-pressure terminated defrost control for electric heat and compressor shut-down defrosting, its new 8200 Series time control automatically varies a defrost period as required, according to Paragon Electric Co., Dept. AH&RN, Two Rivers, Wis.



A combination time control and pressure bellows, the unit is connected to the suction side of the refrigeration system by a copper tube. It is electrically connected with the compressor or the compressor starter and a heating element if used for electric heat defrosting. It may be set to defrost at predetermined intervals and will break the circuit to the compressor and energize the heater circuit.

"In use, the time control keeps the compressor off and the heater circuit on until the back pressure builds up to a pressure corresponding to a defrosted evaporator coil," it was explained. "This pressure may be adjusted on the control from 30 to 55 lbs. when using R-12, or from 70 to 110 lbs. when using R-22.

"This predetermined pressure increase will transfer the contacts in the control from a defrost cycle to a refrigeration cycle and the compressor will come back on, while the heater circuit will be broken. The length of defrost is not dependent upon a time cycle, but is terminated when the coils are free from frost, thus saving unnecessary down time."

Ten different models of the 8200 Series unit are available to suit particular applications. Models are available in 120 or 208-240 volts, 60 cycle; 25 or 50-cycle types are also offered on special order.

Auto Air Conditioner Has New Features

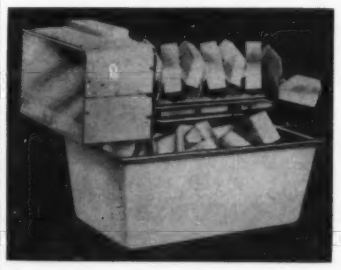
● Several new features are incorporated in the "Novi Deluxe" automobile air conditioner being introduced by Novi Sales & Service Co., Inc., Dept. AH&RN, 20830 Coolidge Hwy., Oak Park 37, Mich.

Among features of the redesigned unit are twin louvers which rotate a full 360°, permitting "spot" cooling toward any part of the car; a wider spaced grille for better air flow; and a redesigned magnetic clutch to provide sufficient inertial force to minimize belt wear and strain under cycling conditions, the company said.

"The control panel has been simplified and now includes a variable speed switch which controls air volume and permits full range coverage to meet any climatic and operating condition," it was stated. "Installation has been simplified by many parts common to all cars."

The new compact cooler, with squirrel cage blowers, has an acrylic plastic case measuring 18 by 6 by 14¼ in.

Automatic Ice Maker



AUTOMATIC ICE MAKER shown above will be incorporated in the roll-out freezer of the General Electric 15-cu. ft. "Frost-Guard" refrigerator-freezer for 1960. Available in April, the ice maker pours its own water, freezes, ejects cubes, and refills automatically as cubes are removed, according to General Electric Co., Dept. AH&RN, Appliance Park, Louisville 1, Ky.

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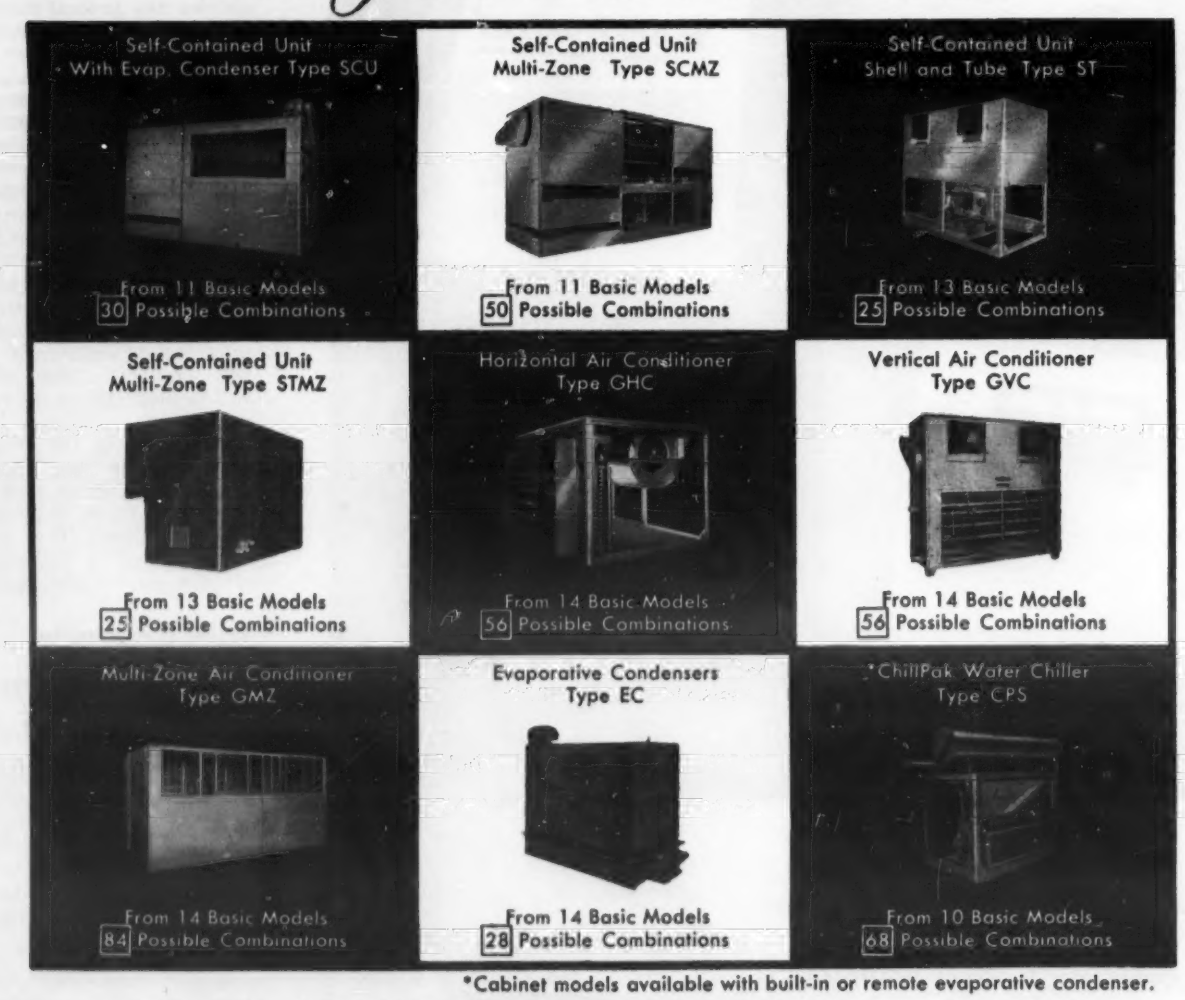

*Cabinet models available with built-in or remote evaporative condenser.

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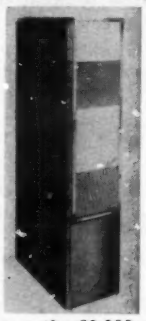
For your copy, clip this ad and mail with name and address to: Air Conditioning, Heating & Refrigeration News. 450 W. Fort, Detroit 26, Mich.

What's New

Armstrong Line Has Improved Diverter

● A line of compact gas-fired up-flow furnaces has been added to the warm air heating and air conditioning equipment manufactured by Armstrong Furnace Co., Dept. AH&RN, 851 West 3rd Ave., Columbus 12, Ohio.

The new units, designated as the 700 Series, are available in 60,000, 80,000, 100,000, and 120,000 B.t.u. capacities, the company said.



Cabinets on the 60,000 and 80,000 B.t.u. models are 25½ in. deep, 12 in. wide, and 54 in. high—the 100,000 and 120,000 B.t.u. models are the same height and depth and 20 in. wide.

"Improved diverter design has made it possible to design an approved 4 in. flue pipe for the 60,000 and 80,000 B.t.u.h. capacity furnaces and a 5-in. flue pipe for the 100,000 and 120,000 B.t.u.h. capacity furnaces," it was stated. "Flues on units with 4-in. flue pipes can be placed through standard stud spaces in walls almost anywhere in a house," the company added.

A complete new heat exchanger design is claimed to provide "exceptional efficiency in heat transfer and unusually even heat distribution through the exchanger to eliminate fatiguing and corrosion caused by uneven heating.

Other features of the new units include new styling in green, gold, and white; new "super-quiet" blowers with drive options to meet air-handling requirements for both heating and air conditioning; and a new stainless steel ribbon-type burner. Permanent washable-type filters are standard equipment.

NEWS readers are invited to write to the editor giving their opinions on any subject of interest to the industry.

'Power-Pull's' Cable Can Be Replaced In Field

● An improved 1½-ton capacity "Power-Pull" manual hoist-puller is now in production at American Gage & Mfg. Co., Dept. AH&RN (O-36), Dayton 1, Ohio.

The new model with 3/16 in. preformed aircraft cable weighs only 7½ lbs. but enables one man to lift, lower, or move over 3,000 lbs., the company claims. Each unit is tested to 50% overload.

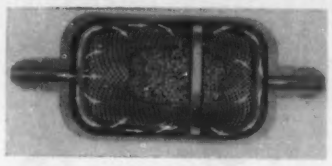
"A new feature permits complete cable replacement in the field in minutes with only a hex socket wrench needed to remove a set screw," the firm said. "The new method of attaching the cable by swaged sleeve and tapered 9/32 in. hole has been tested to equal in strength other parts of the device."

In air conditioning, heating, and refrigeration, Power-Pull is used to lift, lower, move, or brace units and equipment.

Want More Details?

ADDITIONAL details on products that are described on these pages may be obtained by writing the manufacturer at the address given in each What's New story.

'M' Filter-Driers Completely Redesigned



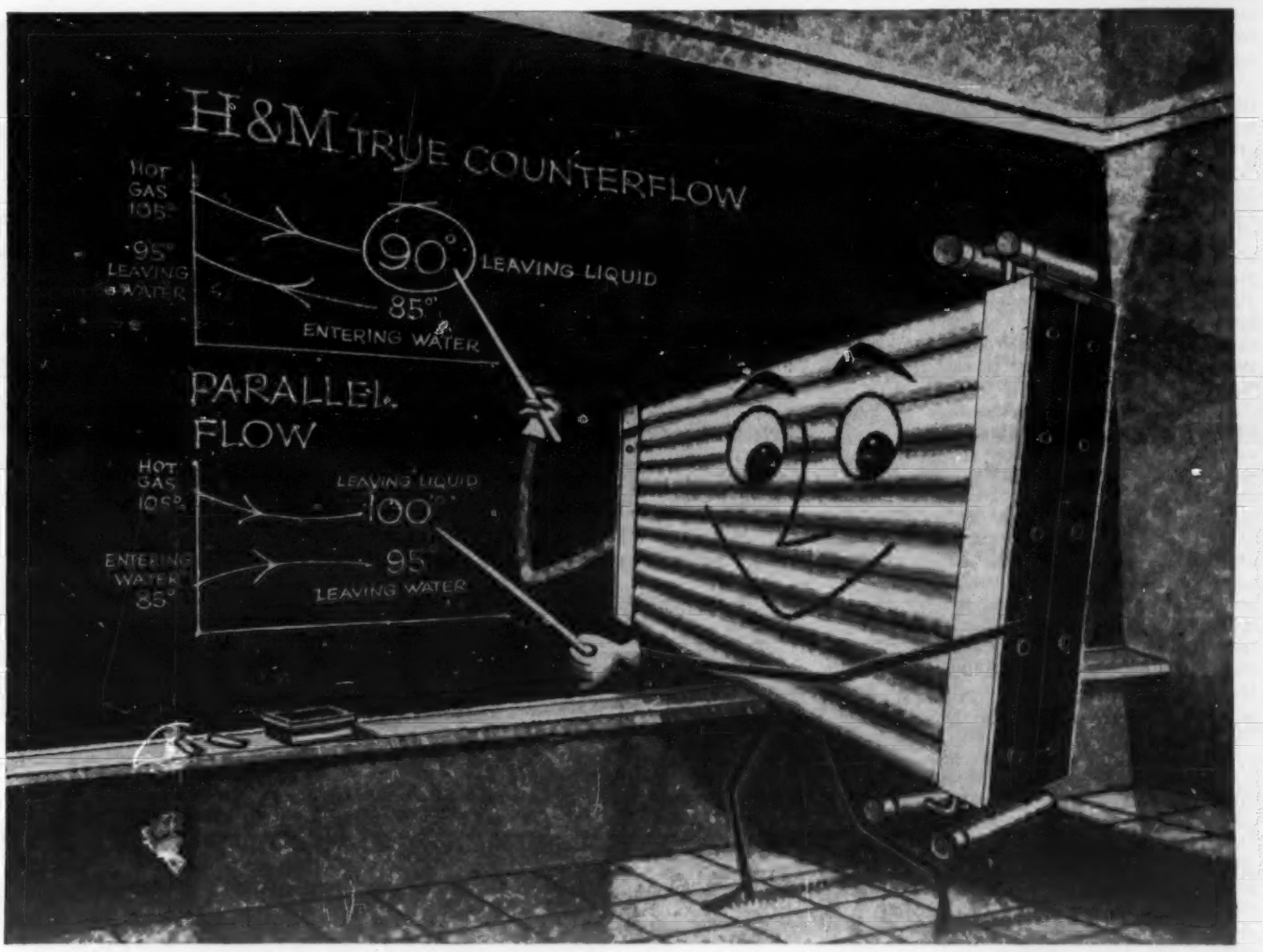
● A new line of "M" filter-driers for refrigeration systems, featuring completely new design and construction, has been introduced by The McIntire Co., Dept. AHRN, Livingston, N. J., manufacturer of DFN refrigeration components.

The device features "a unique 'Microwall' filter enclosure which completely encases the desiccant on all sides and removes all solid foreign matter from the refrigerant before it enters the desiccant chambers," according to the company. "There is no coating or clogging of the desiccant to reduce drying effectiveness.

"The filtered refrigerant then flows through the entire bed of clean desiccant which removes all moisture and acids before the refrigerant passes through the outlet filter, into the refrigeration system.

"The Microwall filter enclosure is correctly proportioned and molded to provide low-micron, progressive filtration at both inlet and outlet, and is reinforced with wire screen for added strength. The desiccant is McIntire's high-capacity 'Permasorb,' a balanced blend of molecular sieves and activated alumina in hard bead form, which provides a large drying area and low resistance to flow, without powdering or channeling," according to McIntire.

The new "M" filter-driers may be used with both Refrigerant-12 and 22, and are available in 20 models covering ⅓ to 10-ton systems, with each model accurately rated to ARI 710-58 specifications for drying capacity, the company said.



BEFORE YOU BUY, THINK:

Will you get adequate subcooling from your condenser?

You will if it's an H&M water-cooled condenser with true counterflow heat exchange

In Halstead & Mitchell water-cooled condensers the refrigerant and cooling water are introduced in true counterflow, as shown in the chart. Test results indicate an average of 15 degrees of subcooling in H&M condensers. Liquid refrigerant leaves at a lower temperature and system capacity is increased about ½% for each degree of subcooling without additional power input.

H&M condensers feature double-tube design, seamless copper tubing, brass headers. End plates are easily removed for quick, safe, *mechanical* cleaning. Water tubes are generously sized for low pressure drop and minimum maintenance. Available in ½ to 25 ton capacities, condenser types are Standard (½" and ⅝" O.D. water tubes), Heavy Duty (⅝" O.D. water tubes), and Sea Water (⅝" O.D. cupro-nickel water tubes), and are U/L approved. Order them from your refrigeration wholesaler and use them singly or on racks. Halstead & Mitchell, Bessemer Building, Pittsburgh 22, Pa.

H&M WATER-COOLED CONDENSER WITH TRUE COUNTERFLOW

Halstead & Mitchell

Water-Cooled Condensers • Cooling Towers • Air-Cooled Condensers • Finned Coil Products

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A BUNDLE of information that took years to compile is yours, FREE with your first purchase of "Supco 88" — THE MIRACLE OIL ADDITIVE FOR REFRIGERATION USE!

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TECH CENTER

by Frank J. Versagi, Technical Editor

Applied Electrical Theory (Part 6)

Fuses and Protective Devices

Why fuses?

For protection, yes. But how arises the need for protection?

Simply, whenever electrons flow through a material, some heat is generated, and the temperature of the conductor rises. In a low-resistance conductor like copper, temperature rise is relatively low; in a high-resistance conductor like tungsten (lamp filaments) or nichrome (heating elements), temperature rise is more pronounced.

The point to remember is that, for each conductor of a certain material and a certain dimension, the temperature rise limits the amount of current which can safely flow. A quarter-inch, foot-long piece of copper will conduct more electricity without overheating than a piece of tungsten of the same dimensions. But the quarter-inch, foot-long copper can't carry as much current without overheating as a half-inch piece of copper the same length.

Similarly, the 15-amp branch circuits in a home are wired with copper conductors capable of passing 15 amps without overheating. Should a short develop, resistance falls practically to zero and hundreds, thousands of amps flow through the wire. Without a fuse, the temperature rise caused by this excessive current will overheat the 15 amp conductors, at least burning them out, possibly causing a fire.

Basic Principle of Fuse Operation

Essentially, a fuse is a strip of metal which will melt at a comparatively low temperature, placed in series with the circuit or devices it is designed to protect. When, for any reason, more current passes than the circuit is designed for, the metal strip melts apart, opening the circuit before the excessive current is able to overheat the conductors dangerously or before it is able to burn out devices designed to operate at a much lower predetermined amp draw.

This basic principle of operation holds for all thermally operated fuses, whether of the plug or cartridge type. Where the entire electrical load on a circuit is resistance load—incandescent lamps, heaters, toasters—a simple strip fuse, plug, or cartridge, is sufficient protection. On such circuits, the ampere rating of the fuse must not be greater than that of the conductors.

When motors are on the line, the situation is a bit different. When an air conditioner starts, for example, the amp draw on startup may be 5-7 times what it is on running. For the seconds that the motor requires to reach running speed, the conductors can carry safely the increased current. But a simple strip fuse, say a 15-amp fuse—designed to protect a motor with a 10-amp running current—may blow in less than ½ second on a 60-amp starting current, causing a nuisance current stoppage.

If a large fuse, a 60-amp fuse, is used instead of a 15-amp fuse, the new fuse will still protect against a short in the circuit, but it will not protect against an **overload.** An overload, electrically speaking, is any condition which causes an electrical device to draw more current than normal, though it continues to operate. A bad bearing, dragging a motor, can cause the motor to pull higher than running amps in operation.

With an oversize fuse in the circuit, it would be possible to overheat the conductors dangerously even though not enough current was drawn to blow the fuse chosen to protect against starting current.

Time-delay fuses are the answer to such problems. Supplied in both plug and cartridge types, the time-delay fuse has a dual element. One element is the simple metal link which will open the circuit instantly in the event of a short. The second element makes use of a very small solder pot and a spring to make normal electrical contact. If current draw is excessive for a long enough period to melt the solder, the spring action breaks electrical contact, opening the circuit.

The pot and spring assembly may be designed for different protection ranges. One, for example, is so designed that it will allow overloads as high as 500% for 10 seconds without opening the circuit. Another will take a 200% overload for 110 seconds. This delay gives the motor ample time to start.

In a bulletin, "Fuseology," Bussman Mfg. Co., University at Jefferson, St. Louis 7, Mo., states that when a fuse blows, one of the following is the cause:

A short.

An overload.

Insufficient time-delay in the fuse.

Poor contacts on, in, or near the fuse.

Overheating of the fuse. (High ambients or too many fuses in a panel).

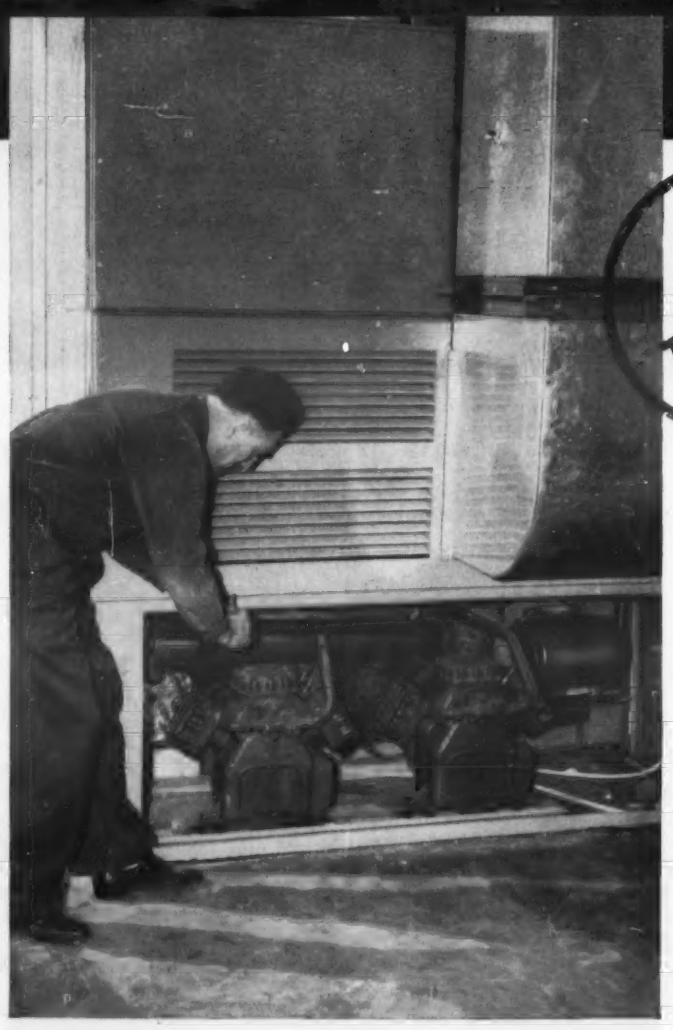
Wrong size fuse.

Vibration.

A cardinal rule: **Never replace a blown fuse without determining and correcting the cause of the open circuit.**

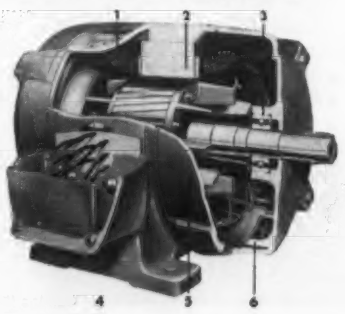
* * *

Also operating on the principle of heat generation due to current flow, but applying the principle differently mechanically, is the **thermal overload protector** as used on hermetic compressors. Use is made of a **bimetallic strip.** This is a thin strip of metal actually fabricated from two thinner strips



JOB TESTED

1. Fortified insulation lasts longer; resists moisture, oils and chemicals 2. Unitized stator gives better electrical performance 3. Pre-lubricated bearings eliminate on-the-job greasing 4. Precision manufacturing produces smooth, quiet operation 5. Armorized frame shrugs off physical abuse, stands up to attacks of foreign elements 6. Drip-proof ventilation gives complete protection *regardless* of mounting position.



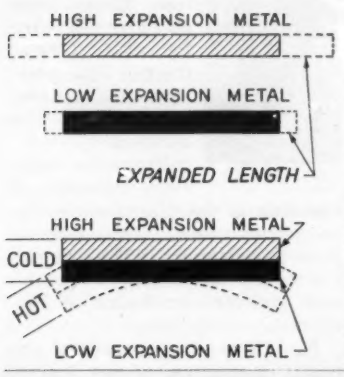
of unlike metals pressed together. One metal has a higher rate of expansion than the other when heated.

Exposed to heat, the two metals expand at different rates causing the strip to warp or buckle, since one or both ends are held fast. The bimetal strip can be so designed and shaped to warp enough to open an electrical circuit—with which it is in series—at a predetermined temperature. The temperature rise may be due to current flow or to high internal heat in the compressor.

When the bimetal element cools off, it reverts to its original size and configuration, and closes the circuit again (automatic reset). If the first open was transiently caused, the unit will operate normally. If an existing condition is causing chronic high temperature or current, the overload protector will repeatedly open the circuit until the condition is corrected.

Bimetallic elements are also applied in circuit breakers, motor starters, relays, all of which will be discussed later in this series.

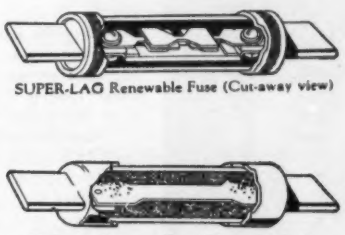
Next: DC and AC—DIRECT and ALTERNATING CURRENTS.



Plug Fuses

Ordinary Plug Fuse — FUSETRON dual-element plug fuse — Fustat

Cartridge Fuses

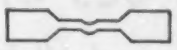


SUPER-LAG Renewable Fuse (Cut-away view)

Ordinary One-time Fuse (Cut-away view)

(Courtesy Bussmann Mfg. Co.)

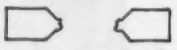
How a Fuse Works



If a current of more than rated load is continued sufficiently long, the fuse link becomes overheated, causing center portion to melt. The melted portion drops away but—

Due to the short gap, the circuit is not immediately broken and an arc continues, and—

burns back the metal at each end, until—



the arc is stopped because of the very high increase in resistance, and because the material surrounding the link tends to mechanically break the arc. The center portion melts first because it is farthest removed from the terminals which have the highest heat conductivity.

On a short-circuit, the entire center section is instantly heated to an extremely high temperature, causing it to volatilize (turn into a vapor). This vapor has a high current-carrying capacity, which would permit the arc to continue, but the arc-extinguishing filler cools and condenses the vapor and stops the arc. The degree or extent of the volatilization of metal is dependent upon the capacity and resistance of the circuit and upon the design of the fuse.

Westinghouse Life-Line A motors customer approved for air conditioning

Westinghouse Life-Line® "A" motors have been thoroughly tested in tough air conditioning jobs throughout the country . . . and proved *outstanding* for rugged performance, dependability and extremely quiet operation.

Precision manufacturing and dynamic balancing of this Westinghouse motor have produced the quietest operating unit available. Tests in soundproof laboratories prove this Life-Line "A" motor produces an operating sound level lower than other standard motors.

Armorized frame provides rigidity to prevent armature misalignment even with heavy shaft loads . . . protects motor from physical abuse and contamination. Ventilation openings in the end brackets make the Westinghouse motor *completely* drip-proof, regardless of mounting position. Life-Line "A" 4-way sealed, prelubricated bearings keep grease in . . . dirt and water out . . . eliminate on-the-job greasing in out-of-the-way applications.

For complete information, call your local Westinghouse distributor or write Westinghouse Electric Corporation, 3 Gateway Center, P. O. Box 868, Pittsburgh 30, Pennsylvania. J-22004

YOU CAN BE SURE...IF IT'S Westinghouse

New Distribution Plan Announced for Galv-Weld Alloy

BRADENTON, Fla. — A new distribution program for "Galv-Weld" alloy whereby independent distributors will be appointed throughout the country, has been announced by Morton L. ("Mort") Clark.

Clark is the originator of the process of regalvanizing the otherwise corrosive seams and areas where galvanizing is burned away by welding, skipped in hot dip galvanizing, or abraded or chipped in fabrication, the announcement said.

"The new policy was tested last year in metropolitan Chicago following an agreement with U. S. Steel Supply Div. of U. S. Steel Corp., then worldwide distributor," it was stated. "A tremendous increase in sales was the result."

An educational and advertising program is being instituted in over 25 fields of end use. The main office of Galv-Weld Products has been established in Bradenton.

"Galv-Welding assures permanent 100% protection against rust and corrosion," it is claimed. "The residual heat from welding or reheating, is employed in application. No special equipment, setup, cleaning, sand or grit blasting, or fluxing are required. No fumes are created.

"Galv-Welding may be readily accomplished in confined, overhead, or vertical positions. It cannot be pried off, and will not chip, peel, or crack even when the base metal is stressed beyond its elastic limit. Corrosion-resistance even surpasses hot dip galvanizing."

Galv-Welding is recommended for pipe joints, galvanized structures, water and fuel tanks, ventilation duct systems, cold storage lockers, sinks, drains, washers, towers, etc.

"It is not affected by corrosive and acid bearing fumes," according to the announcement. "It offers an easy and inexpensive method of repairing chipped porcelain appliances."

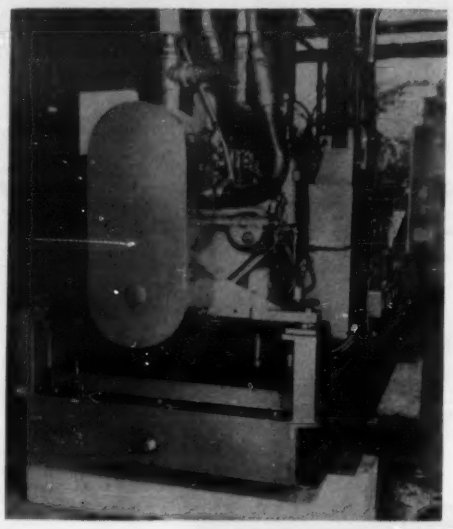
Galv-Weld literature may be obtained by addressing a request to Galv-Weld Products, Dept. ACHRN, P.O. Box 1303, Bradenton, Fla.

All-Gas Grocery Market

Air Conditioning and All Fixtures, Except Low Temperature Cases, Utilize Gas Engine-Powered Compressor

PRESCOTT, Ark. — What is described as "one of the nation's few, if not the only, all-gas grocery market" is Ward's Foodland here.

Immediately after its grand opening last fall, the Foodland attracted wide attention because it had installed a unique gas-operated combination refrigeration and air conditioning system, believed to be the first of its kind anywhere, according to a report by Arkansas Louisiana Gas Co.



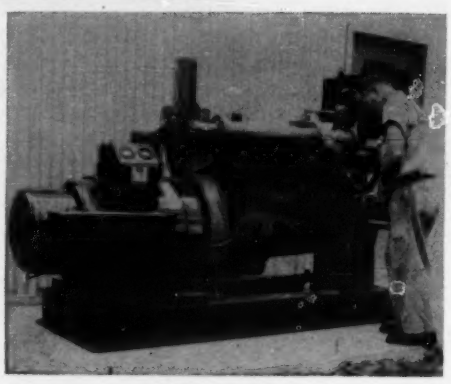
READY-POWER gas engine-driven compressor furnishes Foodland's refrigeration and comfort cooling. It is located in an equipment shed behind the market.

Even Uses Gas-Driven Generator for Power

Then, recently, it went even further gas when a natural-gas driven generator was put in to furnish all of the store's electricity needs.

All refrigeration equipment in the modern supermarket, except the sub-zero frozen food and ice cream cases, is cooled by a gas engine-driven compressor.

The gas-refrigerated equipment includes a large meat walk-in cooler and a small produce walk-in, a 36-ft. self-service meat case, a 24-ft. vegetable case, and a 12-ft. triple-deck dairy case—a total of about nine tons of product refrigeration.



50-KILOWATT gas power generator, which recently made Foodland nearly 100% gas, is shown during installation.

And these cases are standard; the only modification required was a special thermostat for each case.

The same gas engine-operated compressor also provides 13 tons of comfort cooling for the 5,000-sq. ft. customer area.

Operation of the system was explained as follows:

Refrigerant -12 is condensed to liquid in an evaporative condenser and distributed to the food preservation equipment via individual refrigeration lines running through a floor trench to each group of cases. The expanded gas is returned to the Ready-Power compressor by a common suction piping system.

A control system automatically actuates the compressor to satisfy refrigeration demand in any part of the system and automatically stops the gas engine in case of malfunction, or when the demand is satisfied for all cases.

Provide for Timed Defrosting

Provision is also made for timed defrosting of each group of cases; the walk-in coolers are manually defrosted.

Automatic changeover from summer to winter operation is achieved by an outdoor thermostat circuit.

Engine speed modulates to balance the compressor capacity to the load at any time.

An alarm system is installed which rings a bell in the Foodland office in case of compressor failure. By means of a leased telephone circuit, the system also sounds an alarm at the home of the supermarket's owner, Everett Ward.

The supermarket is air conditioned the year-round by one central air handling unit suspended above the ceiling at the rear of the store. A direct-expansion coil provides the 13 tons of cooling with two-stage thermostat control.

A small hot-water coil furnishes winter heating; hot water is circulated to the coil from a small package boiler in the equipment room. A duct system above the ceiling distributes cool and warm air through diffusers throughout the building.

All the market's electric power is provided by an "EM Amp-Pak" 50-kilowatt A-C generator (made by Electric Machinery Mfg. Co., Minneapolis.) driven by a Waukeshaw natural gas engine.

$63 Given as Total Operating Cost for Summer Month

Arkansas Louisiana Gas Co., which designed the unusual refrigeration - air conditioning system and has contracted to provide routine preventative maintenance and 24-hour emergency service, has determined the total operating expense for a typical summer month to be about $63, which is broken down thus:

A little over $50 for 118,000 cu. ft. of natural gas; $2 for about 2 gals. of engine oil; and $11 for electricity (when the electricity was purchased from the municipal utility). No cost data are yet available on the gas power generating systems.

Inquiries can be directed to James Kalmbach, Arkansas Louisiana Gas Co., 812 Main St., Little Rock, Ark.

Dr. Gilman To Manage Carrier Compressor Development

SYRACUSE, N. Y.—Appointment of Dr. Stanley F. Gilman as manager of compressor development for the Unitary Equipment Div. of Carrier Corp. was announced by Russell Gray, Carrier vice president and general manager of the division.

Dr. Gilman

Formerly associate director of research in the Research & Development Div., Dr. Gilman joined Carrier in 1953 from the University of Illinois, where he was assistant professor of mechanical engineering.

He is a member of several national committees of the American Society of Heating, Refrigerating & Air-Conditioning Engineers.

NEWS readers are invited to write to the editor giving their opinions on any subject of interest to the industry.

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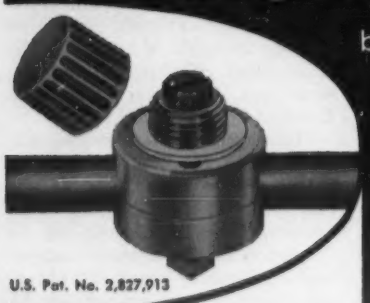

U.S. Pat. No. 2,827,913

as installed on 3 ton Mathes air conditioner

For charging, discharging and testing units quickly and easily without refrigerant loss. Designed to pierce the tubing without crimping or distortion. Line Tap Valves are available in 6 O.D. tube sizes: 3/16", 1/4", 5/16", 3/8", 1/2", and 5/8". ALL SIZES ARE ONE LOW PRICE.

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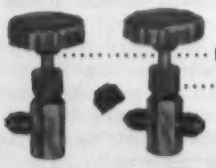
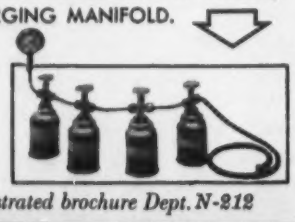
CV-1—A lifetime tool designed to operate all size LINE TAP VALVES as well as WATSCO CAN TAP AND LINE PORT VALVES.—Quick coupled and installed without wrenches.

CV-2—The same Valve as the CV-1 but has a double port which enables you to connect a gauge and charging line in series to one or any number of packaged refrigerant containers, simultaneously. ELIMINATES THE NEED FOR A CHARGING MANIFOLD.



PART NO. CV-1
PART NO. CV-2



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FREE PARKING AND FAST COUNTER SERVICE AT THESE 4 BIG WAREHOUSES

BHC 'United Industry Approach'--

(Concluded from Page 1, Col. 5)

cils for promotion on the local level will result in the most effective promotion to date."

The council also heard Irvin L. Rechkemmer, president of the National Association of Plumbing Contractors, which has recently rejoined BHC after being out of it for two years, praise the council as "the first manufacturer organization of those with whom NAPC is associated to accept ideas of our contractors.

Rechkemmer said NAPC has not done an effective job in telling other branches of the industry how active NAPC members are in heating and cooling. He discussed three separate surveys which he said bore out his contention that at least 65% of the membership does some heating and cooling work, with hydronics dominating the field.

NAPC President Suggests Three Courses of Action

The NAPC president suggested three courses of action to hydronics manufacturers seeking to work more closely with contractors: participation in the 1960 National Plumbing-Heating-Cooling Exposition at Cleveland next June; mutual support of IBR schools for hydronics contractors; and joint public relations and promotion programs.

Lauding the joint public relations efforts between NAPC and the council, Rechkemmer added, "It is a sad commentary that more associations in the manufacturing segment of industry do not prevail upon our contractors for ideas. Let us hope that the cooperative venture between the NAPC and the BHC will demonstrate to these other organizations the value of this type of cooperation."

New Division To Reach Non-Residential Field

The prime objective of the council's new Commercial and Industrial Division will be to "reach and persuade those who approve the purchase of heating and air conditioning systems in non-residential construction," stated Henry M. Gibb of Pacific Steel Boiler Div. of National-U. S. Radiator Corp., chairman of the C & I committee.

While the hydronics industry has been a dominant factor in big building heating and air conditioning systems, it now faces a threat from new advances in air diffusion systems, electric heat, and direct fired heaters, Gibb pointed out.

Previously, Mitchell had analyzed the competition for hydronic systems. Warm air heating and "all air" type air conditioning systems, he said, had the advantages of generally lower first costs, and the backing of some very large corporations which manufacture this kind of product.

The weaknesses in this part of the industry, he outlined, are a high percentage of installations which are inadequate for the job (caused in part by an emphasis on low-cost installations), and a lack of unity and common purpose in the industry.

Electric heat has some advantages in cleanliness and simplicity, and in catching the public's fancy as something "new," and of having the backing of electric power companies, said the BHC retiring president. It has the disadvantages of high operating costs, and of misapplication (in part because of its newness).

The council heard E. R. Teske, executive secretary of the Mechanical Contractors Association of Chicago, tell them that "it's time for the hydronics industry to take off the gloves in its advertising and sales promotion, and to go in with a hard-hitting program that will tell how a hydronics system will eliminate the problems of dirt and noise that the customer is likely to get with other systems."

Teske cited need for written presentations to sell hydronic systems to major purchasing factors, and pointed out that the Joint Industry Program Committee of the plumbing industry is preparing a brochure for use along this line.

3-Point Slogan Suggested

A representative of a local BHC council in Milwaukee suggested that hydronics promotion be built around a slogan embodying these three main concepts: Cleanliness. Healthfulness. Safety.

It was his further suggestion that to implant the concept of "hydronics" in the public's mind, that contractors use job site signs stating "this job done with hydronics heating."

Hailing the BHC activities "as the first effort to let the consumer know that we have fine products," Gordon Andrew, Detroit plumbing, heating, and air conditioning wholesaler, said that the wholesaler's role in the council's program will be to solidify group activity at the local level, and to help the hydronics contractor to become a better salesman and to do a better job.

In the matter of how the market for hydronics "splits up," Andrew cited survey figures which indicated that as of the present new construction represents 65% of the market, and remodeling 35%.

Andrew said that the hydronics field should face up to some of its problems, and attempt a coordinated effort to solve such problems. As major problems he listed:

High costs generally and high labor costs in particular, lack of cost controls, high job estimates incorporating unnecessarily high "safety factors," no coordinated industry selling plan and thus no creation of consumer demand for the industry's products.

Among contractors major faults are an almost total lack of constructive selling effort, failure to educate themselves on modern methods both in engineering and installation techniques, and in modern business methods.

Wholesalers selling hydronics equipment, said Andrew, generally lack aggressiveness, fail to carry adequate stocks, and exhibit a lack of interest in the future of their field.

Executive Director Greene announced that the Puget Sound Better Heating-Cooling Council was organized in Seattle on Nov. 30, and that local councils are expected to organize in Detroit and Baltimore before the end of the year. Other local councils are operating in Cleveland, Chicago, Milwaukee, New York City, and Philadelphia.

Engineering the temperature...

IN SINGAPORE

Twelve Recold Multizone units air condition the American International Assurance Building. These Recold Multizone units, one on each floor, supply 108,000 CFM of conditioned air for this modern, 34 zone, office building. One standard Recold air conditioning unit cools the executive penthouse.

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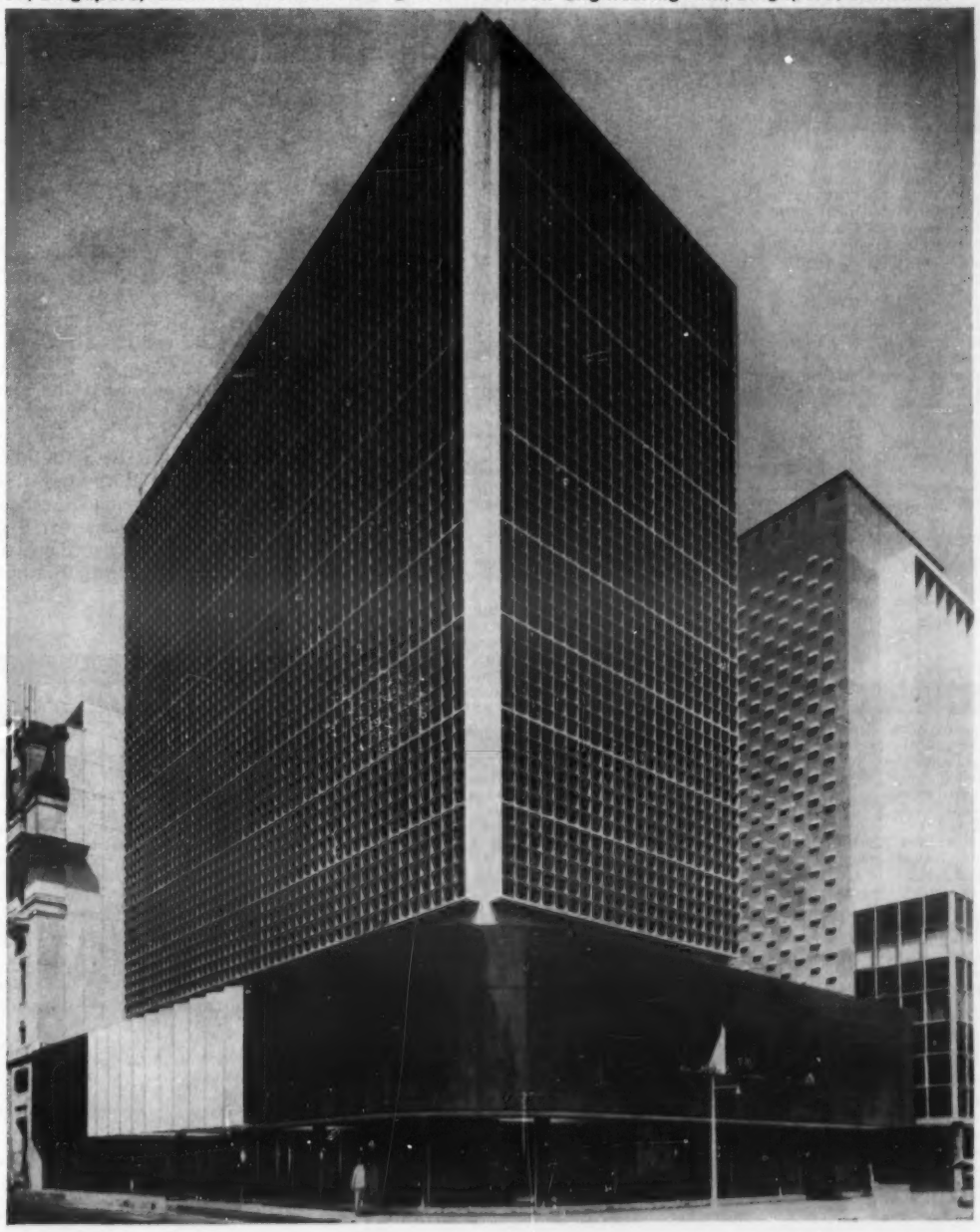
RECOLD



Servicing Automobile Air Conditioners

(Vol. 4 — 1959 Models)

BY C. DALE MERICLE

This is the final instalment in the current series (Vol. 4—1959 Models) of Servicing Automobile Air Conditioners. Like the preceding three volumes it will be published in manual form.

These articles are intended for the *experienced* refrigeration mechanic, not the novice, and are primarily designed for emergency service.

Detailed step-by-step instructions on adjustment and replacement procedures are purposely omitted, partly to discourage the "do-it-yourself" clan and partly because major repair jobs for the most part will be performed by authorized service agencies of the manufacturers without whos cooperation this series could not have been written.

LINCOLN (2)

M-E-L Div.
Ford Motor Co.
Dearborn, Mich.

Controls

Basic control of the Lincoln and Continental air conditioning system is an adjustable thermostat which cycles the magnetic clutch and compressor to maintain desired temperatures.

This thermostat is mounted in the master servo unit control mechanism, which is located in the car instrument panel. Feeler bulb of this thermostat is in the right instrument panel air outlet.

A second thermostat is installed on the left evaporator case with its feeler bulb in the evaporator. This is a de-icing thermostat which breaks the circuit to the magnetic clutch when the evaporator temperature drops to 31° to prevent icing of the evaporator.

(This "de-icing" thermostat should not be confused with the "de-ice" positions on the master servo control. The latter refer to windshield defrosting.)

The two thermostats are wired in series.

Setting of the temperature control thermostat is changed by means of the electric servo control mechanism, which also positions the various air dampers by cables. (See Fig. 2.)

There are 23 positions on the servo control dial (Fig. 3), including six positions for air conditioning. The other positions provide for various degrees of ventilation, heating, and windshield defrosting.

Selection of the six positions for air conditioning on the dial (or any of the other positions) is made by rotating a knob beneath the dial to bring the dial pointer to the desired position.

This knob is also a push-pull switch providing two-speed control of the blowers.

When the dial pointer is set, the electric servo motor rotates a cam plate to the corresponding position. The cam plate positions the adjustable thermostat and seven Bowden cables connected to the control mechanism (Fig. 4). Six cables are connected to dampers controlling air flow, and the seventh is connected to the hot water valve.

The servo control mechanism involves two multi-contact wafer switches and a dynamic breaking relay to control the motor.

Access to the servo control and thermostat is obtained by removing the glove compartment.

In addition to the servo dial-blower control knob, there are two knobs which permit cooled air to be directed upward through the windshield defroster nozzles if desired. These knobs, manually controlled, are located on the dash on each side of the steering column.

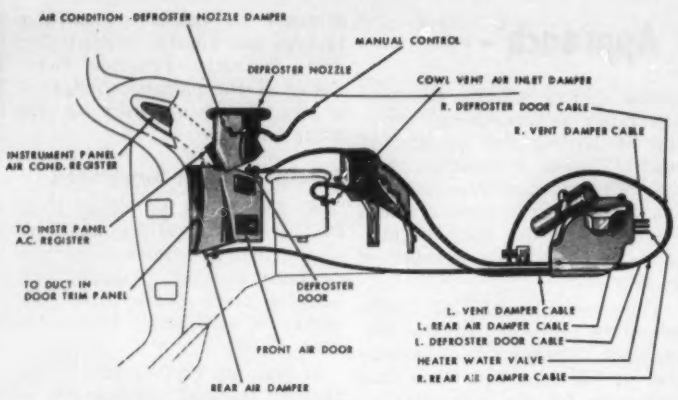


FIG. 2 identifies the various air ducts and cables involved in the Lincoln system.

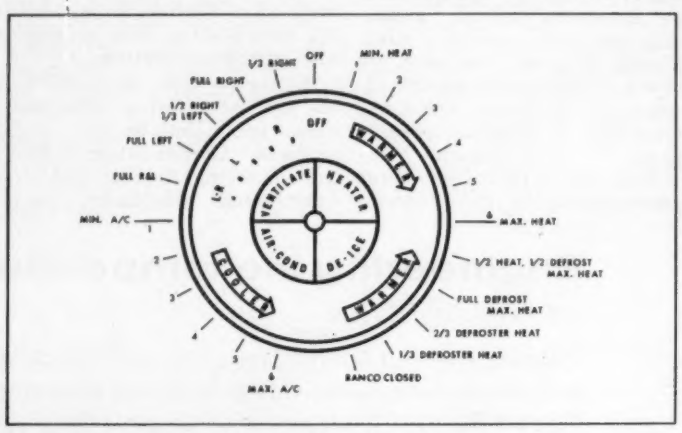


FIG. 3—Electric servo control dial has 23 positions, including six for air conditioning.

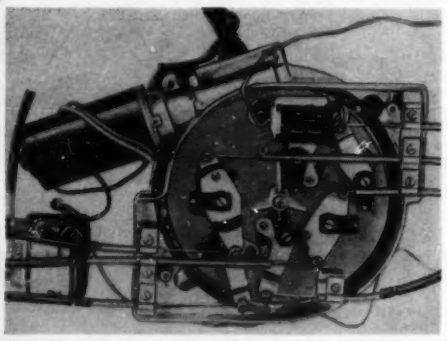


FIG. 4 shows cable connections and thermostat mounting on servo control mechanism.

SERVICE HINTS

Evacuating

Use of a separate vacuum pump for evacuating the system is advised by the manufacturer.

The system should be pulled down to between 26 and 29 in. of vacuum and held there for 20 to 30 minutes.

Charging

Refrigerant-12 is employed in Lincoln and Continental air conditioning systems. Complete charge is 4 lbs.

These systems are charged through the low side with refrigerant in the vapor state.

Performance Test

A check of the performance of this system can be made rather simply. Exactly the same procedure is followed as was outlined for the 1959 Mercury "Climate Dial" system, and the test readings should be the same. Readers are therefore referred to the chapter on Mercury.

Trouble Shooting

Service procedures on the basic refrigeration circuit of the 1959 Lincoln and Continental systems will be the same as those for any system which controls temperature by means of an adjustable thermostat cycling a magnetic clutch with the possible exceptions of there being two evaporators and two thermostats (one for de-icing, one for temperature control).

There could be various other service problems, however, resulting from the design of this particular system.

For example, because the heater cores are in the same housings as the evaporators, the amount of cooling produced would obviously be reduced if the water valve were not tightly closed, thus permitting hot water to flow through the heater cores.

This condition could be caused by a faulty hot water valve or an improper connection of the Bowden cable to the valve or to the servo control.

Improper setting of the various air dampers, likewise, could affect performance of the air conditioning system. The fault could be in the cables or in the operation of the servo mechanism itself.

Service information on the electric servo control mechanism is beyond the scope of this series.

The End of Current Series (Vol. 4) To Be Reprinted.

NEWS readers are invited to write to the editor giving their opinions on any subject of interest to the industry.

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REFRIGERATION, HEATING and air conditioning engineer. Ten years' successful design, development, and application experience at your disposal. I am looking for a position requiring responsibility, initiative, hard work, and sound engineering. BS in ME, registered professional engineer (Mo.). Married, will relocate. Write BOX A6418, Air Conditioning, Heating & Refrigeration News.

MERGER VICTIM — Seasoned sales executive available mid-January due planned merger. Widely known throughout air conditioning and refrigeration circles. Interested position as sales manager, assistant manager, district manager, with opportunities. Income $18,000 range. Middle 40's. References. Relocate. Write in confidence. BOX A6420, Air Conditioning, Heating & Refrigeration News.

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SERVICE MANAGER — Qualified to handle commercial refrigeration and air conditioning service department. Must have business ability and be thoroughly experienced. Permanent position. Please write to EVER-READY REFRIGERATION CO., 220 N. Broad Street, Trenton 8, New Jersey, giving complete resume of experience, availability and salary expected. All replies will be held in confidence.

AIR CONDITIONING and refrigeration service engineer to locate in Southwest. Write and give experience on controls, control wiring, air distribution and general knowledge of air conditioning and refrigeration equipment and systems. Send qualifications to H. L. MALONEY, P. O. Box 13005, Station K, Atlanta 24, Georgia.

REFRIGERATION ENGINEER to assume complete charge of the design and development of residential refrigerators wanted by West Coast manufacturer. State age, past experience, education and salary requirements. Our engineers know of this ad. Reply to: BOX A6415, Air Conditioning, Heating & Refrigeration News.

REFRIGERATION SERVICEMAN — Small manufacturing company, long established, machines nationally distributed, has opening for man experienced with refrigerant 22. Prompt advancement to department head for right man. BOX A6416, Air Conditioning, Heating & Refrigeration News.

MANUFACTURERS REPRESENTATIVE for commercial refrigerator manufacture. Several top territories open. Products would include complete line of walk-in coolers and freezers, package, refrigeration units, etc. Give details as to experience, and territories that you can give complete coverage. BOX A6419, Air Conditioning, Heating & Refrigeration News.

SERVICE MANAGER—Food store experience preferred. We include commercial and industrial air conditioning, refrigeration, with some heating in our scope of operations. Applicant should be qualified to set up and run a service department. We cover the general Virginia area. Old established firm, constantly expanding. Replies should include a recent photograph, references, age, general background and expected salary. All replies held in strict confidence and will be answered promptly. Write BOX A6421, Air Conditioning, Heating & Refrigeration News.

MAN WANTED by established expanding engineering service organization in New York City. Must have college degree and experience handling personnel. Engineer desirable. Excellent opportunity for management position. Reply by letter including details education and experience. Write BOX A6422, Air Conditioning, Heating & Refrigeration News.

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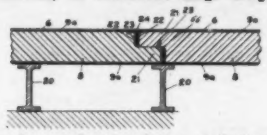
PATENTS

Week of July 28

2,896,271. ENCLOSURES FOR REFRIGERATED AREAS. George E. Kloote and George D. Meier, Grand Rapids, and Joseph A. Potchen, Marne, Mich., assignors, by mesne assignments, to Haskelite Mfg. Corp.

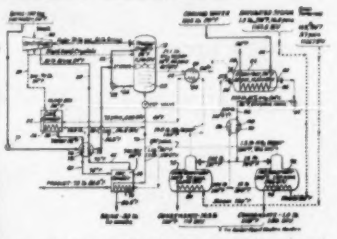


1. An enclosure for a refrigerated area comprising a plurality of laminated panels having on at least the surfaces exposed to the interior of said enclosure a moisture impervious facing of synthetic high density resin, a core having a low coeffient of thermal conductivity, said core being a rigid expanded cellular synthetic resin, the cells of said core resin being independent and hermetically sealed from each other, and a moisture impervious adhesive bonding said facing to said core, the abutting surfaces of said panels being adhered with a moisture impervious adhesive to thereby form a strong moisture impervious joint which presents a continuous smooth interior surface in said enclosure.

2,896,312. REFRIGERATING APPARATUS. Carl M. Schell, Dayton, Ohio, assignor to General Motors Corp., Detroit, Mich.

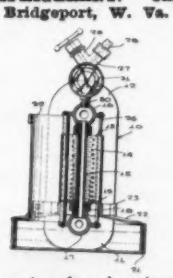
The process of forming a serpentine type of heat exchanger which comprises superimposing two strips of weldable material having therebetween a first pattern of stop weld material arranged in the general configuration of the desired main passageway to be formed including one type of configuration for the straight run portions of said heat exchanger and another type of configuration for the return bend portions and having a second locating pattern of stop weld material adjacent one edge of said strips and having a plurality of indicator portions arranged in a predetermined relationship to said return bend portions of said first pattern, roll forging said plates together to form a composite strip. . . .

2,896,419. FRESH WATER RECOVERY PROCESS AND APPARATUS FOR USE IN SAME. Herbert L. Thompson, Birmingham, Ala.



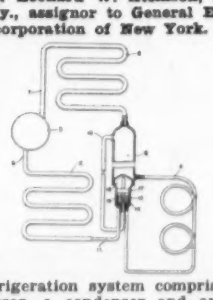
1. In the method of recovering fresh water from the sea, the combination of a water cycle, a refrigeration cycle operating on an evaporator-absorption system, and a steam cycle, wherein the water cycle comprises the steps of withdrawing water from the sea, extracting heat from the water in a freezer-crystallizer by passing the sea water in heat exchange relation with an evaporator in the refrigeration cycle in which a liquid refrigerant is vaporized with resultant drop in temperature to extract heat from the sea water and cool the water to a temperature below freezing. . . .

2,896,420. APPARATUS FOR CHARGING A REFRIGERATING SYSTEM WITH A PREDETERMINED AMOUNT OF REFRIGERANT. Charles L. Smouse, Bridgeport, W. Va.



An apparatus for charging a refrigerating system with a predetermined amount by weight of refrigerant comprising a closed receptacle having a bottom and a top and adapted to contain a body of gaseous refrigerant in liquefied state, a vertically disposed liquid scale marked in volume graduations corresponding to specific weights of the liquefied gaseous refrigerant at a predetermined temperature and pressure positioned exteriorly of said receptacle and extending from the bottom of said receptacle to a point adjacent to and spaced below the top of said receptacle. . . .

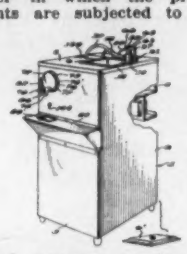
2,896,422. REFRIGERANT CONTROL MEANS. Leonard W. Atchison, Louisville, Ky., assignor to General Electric Co., a corporation of New York.



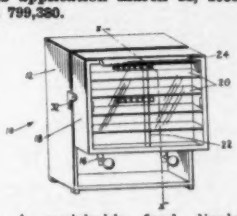
A refrigeration system comprising a compressor, a condenser and an evaporator connected in refrigerant flow relationship, a receiver in said system between said condenser and said evaporator for storing liquid refrigerant from said condenser, an intermediate chamber in said system between said receiver and said evaporator. . . .

2,896,421. FOOD PRODUCT PREPARING AND DISPENSING MACHINE. Earl L. Rader, Burbank, Calif.

1. In a machine for preparing and dispensing a refrigerated food product capable of fluid flow, a container adapted to hold a supply of fluid ingredients of the product, a closed chamber in which the product ingredients are subjected to a predetermined pressure greater than atmospheric pressure and refrigeration and from which the product is dispensed while being prepared for consumption. . . .

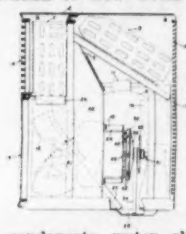


2,896,423. PERISHABLE FOODS DISPENSER. James Daniel Pottinato, Clayville, N. Y. Continuation of application Serial No. 628,908, Dec. 17, 1956. This application March 11, 1959, Serial No. 799,380.



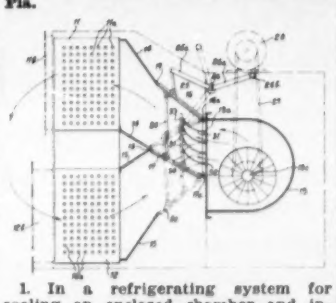
1. A perishable food display case and bulk milk dispensing mechanism comprising in combination a pair of juxtaposed generally rectangular, insulated compartments; a common uninsulated partition member separating said two compartments; a plurality of cooling coils mounted in the walls of at least one of said compartments; a pair of glass sliding doors slidably mounted to form the outer wall of one of said compartments. . . .

2,896,424. CONDENSATE DISPOSAL ARRANGEMENT FOR AIR CONDITIONER. Stanley E. Rose, Lyndon, Ky., assignor to General Electric Co., a corporation of New York.



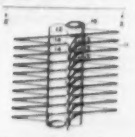
1. A condensate water slinger for slinging water within the casing of an air conditioning apparatus comprising a fan mounted in the lower portion of said casing for circulating a stream of outside air through said casing for heat exchange purposes, a motor mounted in the lower portion of said casing and having a shaft for driving said fan, a sump in said casing for collecting condensate water from said air conditioning apparatus. . . .

2,896,425. REFRIGERATING SYSTEM HAVING REVERSE FLOW. Frank H. Dunbar, Miami, Fla., assignor to Frank J. Reilly, Winter Park, Fla.



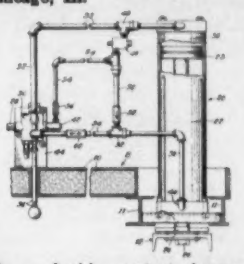
1. In a refrigerating system for cooling an enclosed chamber and including two sets of spaced evaporator coils, and an air blower having an air inlet and an air outlet for circulating a flow of air through the chamber by way of the coils, a device for controlling said flow which comprises air ducts communicating separately with said chamber through the spaces between the coils of the respective sets, said ducts having a dividing edge common to both ducts. . . .

2,896,426. HEAT EXCHANGE CONSTRUCTION. Robert W. Ayling, Syracuse, N. Y., assignor to Carrier Corp., Syracuse, N. Y.



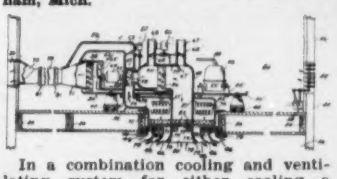
5. A heat exchange member comprising a conduit for the passage of a heat exchange medium, fin elements on said conduit with portions thereof at a higher level than other portions and lips on said fin elements for conducting condensate away from said fin elements, said lips being formed on adjacent fin elements in superimposed stacked relationship, each lip being in contact with an adjacent lip.

2,896,427. HYDRAULIC SYSTEM FOR FREEZER. William E. Lauterbach and Peter Strutynski, Chicago, Ill., assignors to Dole Refrigerating Co., Chicago, Ill.



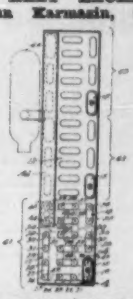
1. In a double contact freezer or the like, a housing, a plurality of freezer plates movably mounted therein so as to close and open, as a group, in accordian fashion, and fluid power means for closing and opening the plates including a power cylinder. . . .

2,896,428. AIR CONDITIONING APPARATUS. Clyde R. Paton, Birmingham, Mich.



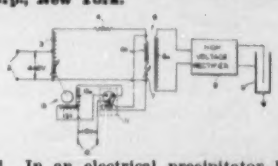
In a combination cooling and ventilating system for either cooling a room or ventilating the room, a duct within a closed space without the room, said duct having an air inlet and an air outlet communicating with the room, a cooling element within said duct between the inlet and outlet thereof, a blower within said duct between said cooling element and said outlet, a heat dissipating element without said duct operatively connected to said cooling element.

2,896,429. HEAT EXCHANGE DEVICE. John Karmazin, Grosse Ile, Mich.



2. In an evaporator core, a pair of oppositely disposed elongated supporting brackets, a plurality of tubes of substantially equal length extending in parallel relation between said brackets, the axes of said tubes being disposed at the intersections of planes parallel to and at right angles to the thickness of the evaporator core, means for connecting said tubes into a pair of nested conduit sections for carrying refrigerant fluid in two parallel paths. . . .

2,896,741. VOLTAGE CONTROL SYSTEM FOR ELECTROSTATIC PRECIPITATORS. Harry A. Wintermute, Plainfield, N. J., assignor to Research Corp., New York.



1. In an electrical precipitator having a low-voltage input, a high-voltage step-up transformer, a high-voltage rectifier supplied by said transformer, and precipitator electrodes supplied by said rectifier; voltage control means for energizing the precipitator electrodes under a wide range of operating conditions requiring a large variation of input current to the primary of said transformer. . . .

(To Be Continued)

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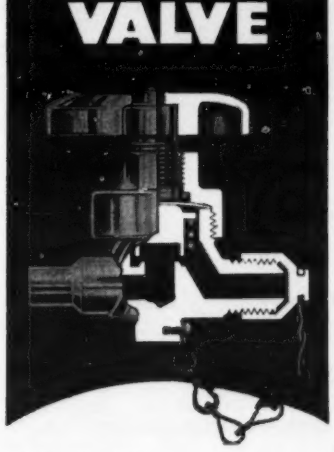
REFRIGERATION and AIR CONDITIONING SYSTEMS

THE NEW KEROJET CHARGE, PURGE and DRAIN VALVE



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Designed for ease of operation, this new valve features compact packless diaphragms of beryllium copper and stainless steel, for maximum resistance to wear. Rugged forged brass body has integral mounting flange. Maximum operating pressure, 500 p.s.i. Maximum temperature, 200° F. Connection size inlet ⅜" solder connection—outlet ⅜" male flare. See your Kerotest wholesaler today.

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'AromaRama' Needs Air Conditioning--

(Concluded from Page 1, Col. 3)

art of air conditioning for making "AromaRama" possible.

Furthermore, air conditioning contractors throughout the U.S. (and eventually throughout the world) will have to be called in to play the top role in preparing theaters for showings of "AromaRama."

During the showing of the film no less than 72 scents are wafted to the olfactory organs of the audience, the scents keyed to scenes that would produce the odors if one were actually at the spot portrayed on the film.

The air distributing and air treating system must cleanse all the air in the entire theater of the odors from one scene well before another scent for another scene is introduced into the theater. And with scents ranging from the tangy one of an orange being sliced to that of a river in China, a tiger in the jungle, and the acrid odor of exploding firecrackers, some expert effort in the conditioning of air must have obviously been involved.

Scenting System Somewhat Secret

Those responsible for producing and exhibiting the film will tell in part—but not everything—about how the "scenting" is accomplished. Some of the modifications that they have made in the theater air conditioning system which affects the air distribution pattern they do not choose to reveal at this time, because they believe they have design concepts that are possibly unique and which they feel they can protect against being copied.

"AromaRama" was conceived and developed by Charles Weiss, a public relations executive working in the motion picture field. A general partner in the Aroma-Rama Co., Oakhurst, N. J., is Walter Reade, Jr., a theater chain owner.

Others who have had a part in getting it under way are Bernard H. Lepselter, Adams Engineering Co., New York City air conditioning contractor; officials of Statronic, manufacturer of odor control equipment; and Sidney Kaufman, motion picture industry veteran and adapter and distributor of foreign-made films.

Any Existing Central System Can Be Adapted

AromaRama does not require a new theater or a new air conditioning system. Any existing "central station" type air conditioning system with reasonably good air supply and air return facilities can be used. (For the present, at least, it cannot be used in theaters air conditioned solely by packaged units).

The premiere of "Behind the Great Wall" in New York was at the DeMille theater, which is the renovated former Mayfair theater located at 7th Ave. at 47th St. in the Time Square district, and was one of the older movie houses in Manhattan.

The "AromaRama" fragrances, which were compounded by Rhodia, Inc., distributor for a well-known French perfume producer, reach the theater-goers in the following manner:

On the suction side of the air conditioning system blower the scents are introduced through the aerosol bomb principle (such as is used in bug bombs). A "scent track" is activated by electrical impulses keyed from the film track to atomize the correct scents into the air distribution system.

Also on the suction side of the blower, but ahead of the atomizer equipment, are first, some permanent type filtering media, and then the Statronic odor control device.

The Statronic device, which has been used in the Union Carbide building in New York City and in some other large building air conditioning systems for dust and odor control, produces a negative ionization effect through a grid-like structure which is fitted tightly into the duct. No ozone is created, but all but faint traces of the scent which was more recently wafted into the theater is removed as the air is returned from the occupied space. Some fresh air is also introduced.

Even Air Distribution Is Major Problem

A major problem, of course, was to have the air distributed as evenly as possible through overhead diffuser to all the seat areas—main floor and balcony—in the theater. This is where the "trick" of balancing out the air distribution system became necessary. Some changes in amounts of air delivered and in leaving air velocities might be indicated. Smoking areas cannot be permitted in theaters where an AromaRama production is shown.

The presentation in New York represents a victory for the AromaRama group in its race with Michale Todd, Jr., sponsor of a process known as "Smell-o-Vision" which reportedly will premiere a picture with 40 different smells at the Cinestage theater in Chicago on Jan. 6.

AromaRama is certainly something different in the form of motion picture entertainment, but heed this warning: don't take your pussycat to the show. The scent of the tiger is said to make an ordinary cat like crazy, man.

G-E Motor Prices--

(Concluded from Page 1, Col. 5)

first price increase on these motors in more than three years, said the General Electric executive, who also pointed out that during that time, General Electric has reduced prices on many motor lines in the face of increasing labor, material, and other costs. In the past year alone, these cost increases have approximated 4% without taking into consideration higher steel costs resulting from the steel strike.

13 Mfrs. Using Fram 'Permachem' Filters

PROVIDENCE, R. I. — Thirteen producers of air conditioning and heating equipment plan to use "Permachem" treated air filters in some 1960 models, according to Fram Aire Corp., division of Fram Corp.

They are American-Standard Industrial Div.; Trane Co.; Gibson Refrigerator Co.; Kritzer Products, Div. of Peerless of America, Inc.; Whirlpool Corp.; Emerson Electric Co.; Typhoon Air Conditioning Co.; Montgomery-Ward; Westinghouse Electric Corp. (furnaces); Western Auto Supply Co.; Worthington Corp.; York Corp.

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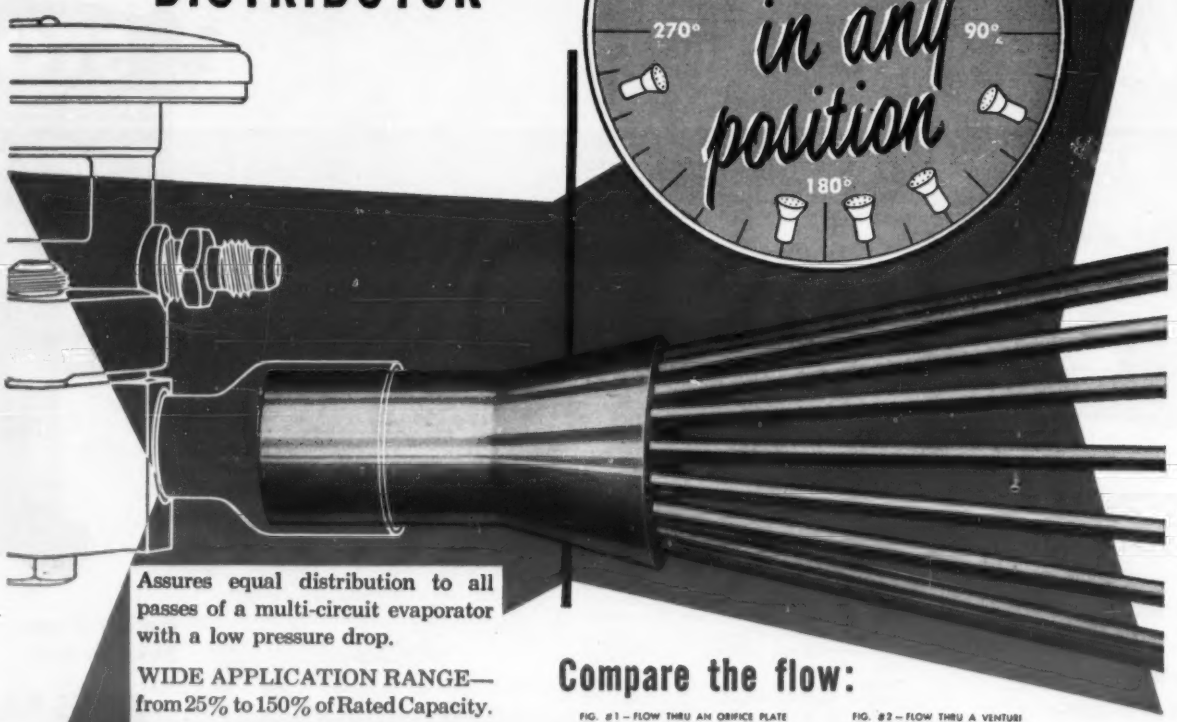

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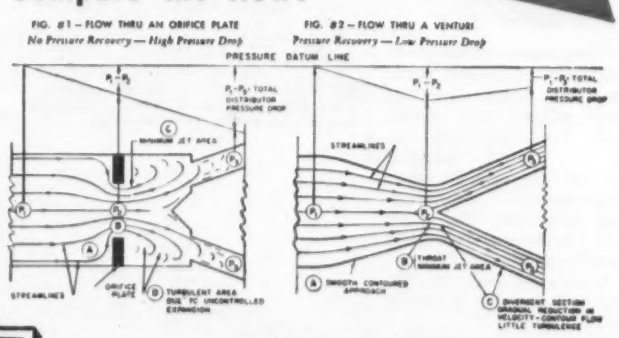
FIG. #1 – FLOW THRU AN ORIFICE PLATE
No Pressure Recovery — High Pressure Drop
FIG. #2 – FLOW THRU A VENTURI
Pressure Recovery — Low Pressure Drop
PRESSURE DATUM LINE

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